

CA24N
H4 200
-79S27

Government
Publications

SEATON

in the Town of Pickering



3 1761 11892616 1

Supporting Documentation
for
Official Plan Amendment
Regional Municipality
of Durham



Ontario

Ontario Land Corporation
Ministry of Housing

Ministry of Housing

Claude F. Bennett
Minister

Ontario Land Corporation,
an Agency of the Government of Ontario,
responsible for Seaton New Community

Board of Directors:

R. M. Dillon
Chairman

R. M. McDonald
Vice-Chairman and Chief Executive Officer

H. W. Hignett
Director

J. H. Joyce
Director

R. W. Riggs
Director

A. J. Trusler
Director

W. Wronski
Director

CA24N
H# 200
-79327

Government
Publications

SEATON


in the Town of Pickering



Supporting Documentation
for
Official Plan Amendment
Regional Municipality
of Durham

Ontario Land Corporation
Ministry of Housing

Prepared by Marshall Macklin Monaghan Limited



Digitized by the Internet Archive
in 2024 with funding from
University of Toronto

<https://archive.org/details/31761118926161>

Contents

	Page
PREFACE	3

Background

1.	INTRODUCTION	5
	1.10 Project Area	5
	1.20 The Toronto Centred Region Concept	6
	1.30 The Planning Process	8
	1.40 Summary Description of the Plan for Seaton	1
2.	REGIONAL CONTEXT	23
	2.10 Regional Land Uses	23
	2.20 Regional Transportation	26
	2.30 Regional Services and Utilities	29
3.	NORTH PICKERING PLANNING AREA	33
	3.10 Physical Characteristics	33
	3.20 Land Uses	37
	3.30 Roads	44
4.	DEVELOPMENT BASE	45
	4.10 Population Trends	45
	4.20 Employment Projections	57
	4.30 Housing Market	62
	4.40 Housing Policy and Programs	79
	4.50 Retail Potential	84
	4.60 Social Requirements	91
	4.70 Urban Land Requirements	96
	4.80 Development Constraints and Opportunity Analysis	96

Plan

5.	LAND USE PLAN	99
5.10	Planning Approach	99
5.20	Residential Areas	101
5.30	Local Facilities	104
5.40	Community Central Areas	105
5.50	Sub-Central Area	106
5.60	Parks, Recreation and Environmental Protection	120
5.70	Industrial Areas	126
6.	TRANSPORTATION	133
6.10	Urban Transportation Network	133
6.20	Public Transit	138
7.	SERVICES AND UTILITIES	139
7.10	Planning Considerations	139
7.20	Services Recommendation	140
7.30	Storm Water Management	143
8.	IMPLEMENTATION	147
8.10	Development Program	147
8.20	Planning approval Procedure	155
8.30	Environmental Management	159

APPENDICES

Preface

This report describes, in detail, the basis of a plan for Seaton, a new community within the Town of Pickering to be undertaken by the Province of Ontario on a 2,800 hectare (7,000 acre) site north-east of Metropolitan Toronto. It contains proposals for the development of an urban community of 75,000-90,000 people.

The report outlines and references the background studies which have been undertaken as part of the planning process for the community. It sets out the general principles for development and the broad pattern this development will take during the next 25 to 30 years.

The plan has evolved through extensive public involvement. As important planning issues were identified, citizen input was sought. This directly affected decisions on population level, the location and form of the urban community, the degree of preservation of agricultural land and the provision of a major open space buffer between Seaton and other urban developments.

Planning Seaton has been an exciting challenge. Sensitive development of this new community will bring more than new houses and related facilities into the area. It will provide opportunities for people to live and work there. Residents will be able to pursue unique and individual life-styles.

The Seaton Community is now designated as a Major Urban Area in the Official Plan of the Regional Municipality of Durham. As the next step in obtaining planning approvals from the Region of Durham and the Town of Pickering, the Ontario Land Corporation is making application for an amendment to the Region of Durham Official Plan to set out the land uses and transportation network for Seaton. This report has been prepared by the Corporation's consultants, Marshall Macklin Monaghan Limited, in support of that application.

Background

1. Introduction

Seaton is a new community to be developed by the Ontario Land Corporation, an agency of the Province of Ontario. It is conceived in response to growth pressures within the Toronto-Centred Region.

1.10 Project Area

Seaton is located approximately 30 kilometres (18 miles) northeast of central Toronto and approximately 25 kilometres (15 miles) west of downtown Oshawa (See Figure 1.10a). The total North Pickering Planning Area covers some 10,200 hectares (25,200 acres) in three municipalities (See Figure 1.10b). The urban community, Seaton, which is the subject of this application, covers approximately 2,800 hectares (7,000 acres) and is located entirely in the Town of Pickering, within the Regional Municipality of Durham.

1.11 A New Community in Pickering

On March 2, 1972, the Government of Ontario announced it would acquire the 10,200 hectare (25,200 acre) project site northeast of Metropolitan Toronto. The announcement was made as part of a joint statement by the Governments of Ontario and Canada.

The joint announcement was the result of several streams of activity at the provincial and federal levels. These included continuing work by the Province to implement the Toronto-Centred Region Concept designed to structure growth in the region; investigation by the Federal Government into the most appropriate location for a New Toronto International Airport; and increasing recognition that the establishment of new communities, through governmental initiative, is an effective means for resolving some of the problems associated with the continuing growth of larger urban centres.

In this context it was proposed that the new community would have a population between 150,000 and 200,000 people by the turn of the century. However, as a result of subsequent studies and public dialogue which stressed the importance of preserving agricultural land and hamlets within the site area, a revised approach was announced by the provincial Minister of Housing in January, 1974.

Thirty-two hundred hectares (8,000 acres) on the west and south periphery of the North Pickering Planning Area were set aside to provide an Open Space System of predominantly agricultural, recreation uses and

other compatible uses with accommodation for utility and transportation corridors. Similarly, an Agricultural Community of 4,200 hectares (10,400 acres) was identified on the west side of the West Duffin Creek. The remainder of the Planning Area was designated as the future location of the Urban Community, covering approximately 2,800 hectares (7,000 acres).

The existing rural settlements of Whitevale, Locust Hill, Cedar Grove, Cherrywood, Cherrywood East and Martin's Subdivision would be preserved, enhanced, and integrated into the total design of the North Pickering Planning Area. A subsequent decision was made to preserve the hamlet of Green River. The new approach also provided that the population of the urban area of the new community would be determined through public participation.

1.12 Minister's Orders

Temporary Minister's orders under Section 32 of the Planning Act were applied to provide development control throughout the entire North Pickering Planning Area. The purpose of these orders is to ensure that existing uses are maintained until the principles and objectives of the plan for the North Pickering Planning Area, including Seaton, are incorporated in the official plans of the municipalities having jurisdiction.

1.20 The Toronto Centred Region Concept

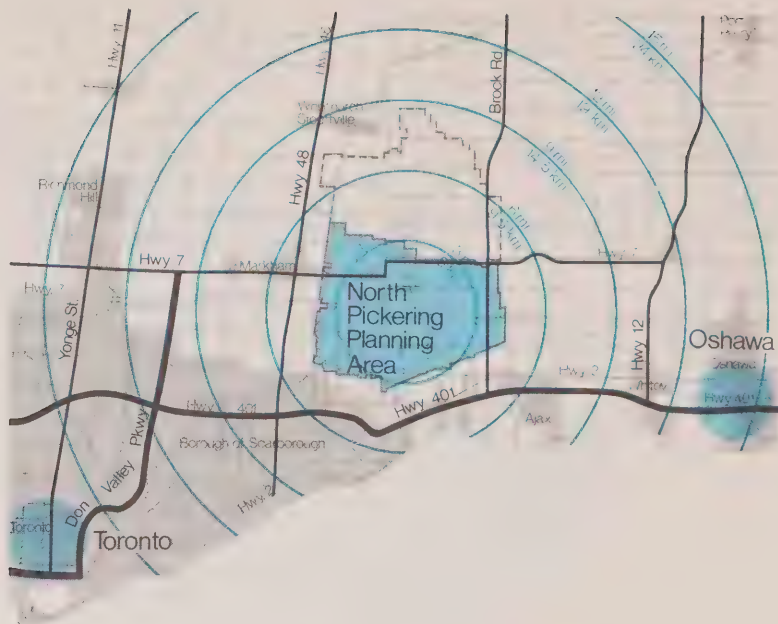
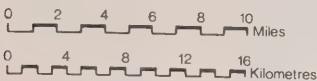
The rationale for the new community of Seaton is based on a considerable number of studies, plans, provincial policies and programs. To a great extent, the location, role, phasing and transportation network of the new community are a direct outcome of provincial planning policies for the lakeshore urbanized zone from Hamilton to Oshawa.

On May 5, 1970, the Government of Ontario released Design for Development: The Toronto-Centred Region.⁷³ This concept defined an 8,600 square mile region extending from the Hamilton-Brantford area in the west, to the Georgian Bay area in the north, and beyond Port Hope and Cobourg in the east. (See Figure 1.20).

Three zones were established, reflecting different problems, priorities and degrees of policy emphasis. These related to highly structured, intense urban development (Zone 1); to modest urban growth within an

Figure 1.10a

Regional Location



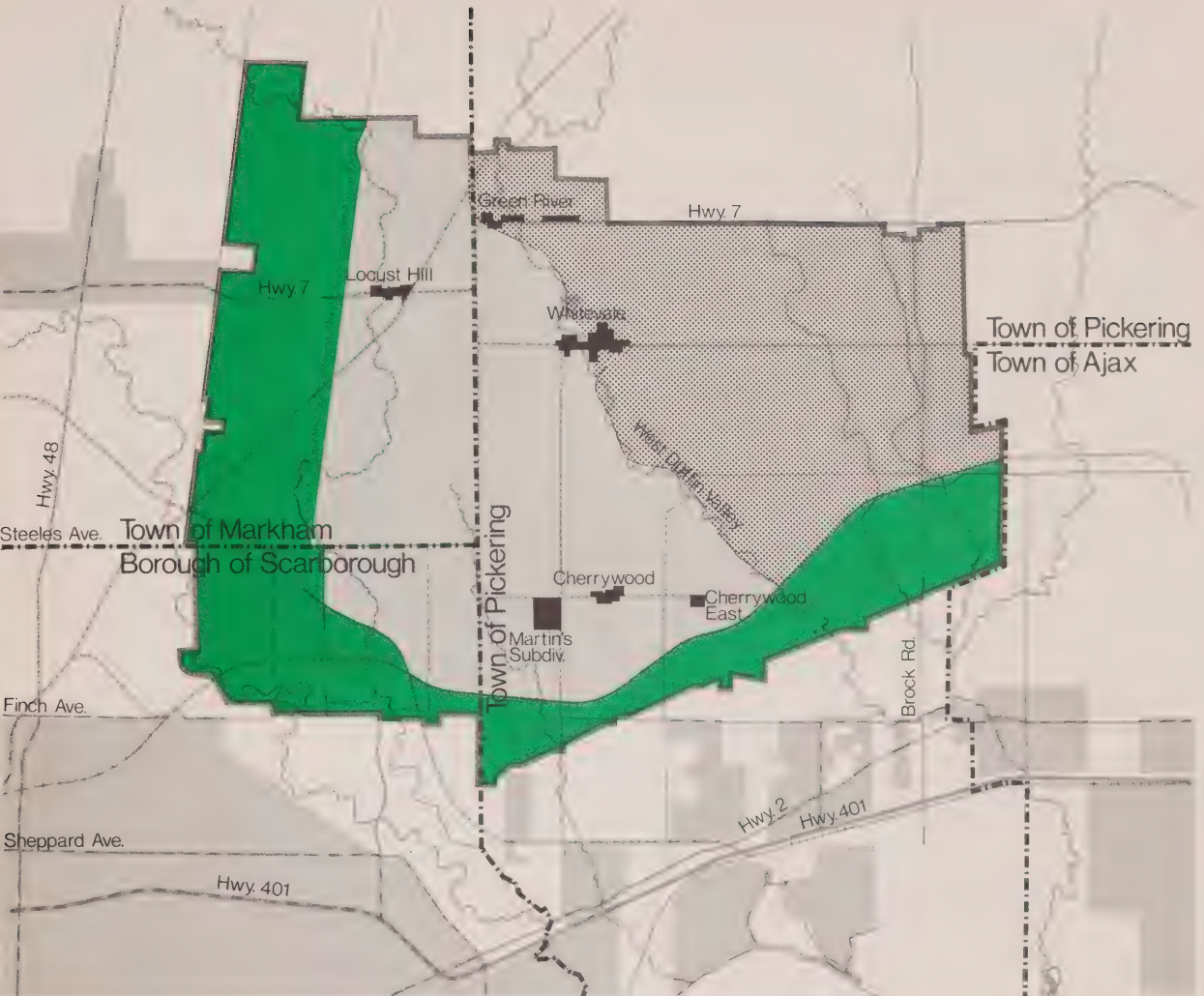
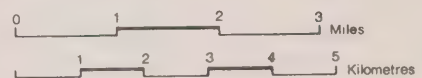
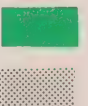


Figure 1.10b
North Pickering
Planning Area



- Open Space System
- Seaton Major Urban Area
- Hamlets and Rural Subdivisions
- Agricultural Area



agricultural, recreation and open space setting (Zone 2); and to selective peripheral urban-economic development (Zone 3).

The lakeshore urbanized area (Zone 1) contained two tiers of urban communities differentiated by role, size and growth, but tightly integrated through social, transportation and economic links. Hamilton on the west and Oshawa on the east were indicated as regional terminal cities at either end.

An important element in Zone 1 is the Parkway Belt System that will contain transportation and servicing corridors, provide a network of agricultural and recreation uses, and act as a buffer between urban centres. The alignment of the Parkway Belt has now been defined from Dundas to Highway 48 at Markham. The alignment eastward to its terminal in the Oshawa-Bowmanville area is yet to be finalized.

1.21 Seaton within the Toronto-Centred Region

In the 1970 concept, development of four new communities was proposed in a second tier north of the existing lakeshore communities east of Toronto. Cedarwood, with a projected population of 40,000 to 75,000 people (August 1971, TCR Status Report),⁷⁴ and Brock, with a population between 50,000 and 250,000, were to be developed northeast of Metro Toronto. The other two would be located north of Whitby and Oshawa.

The Federal Government's decision to proceed with an airport in Pickering prompted a change in the Province's TCR Concept for the east of Metro area. It was decided to combine the geographic area of Brock and Cedarwood into the North Pickering Project. This reflected the desire of the Provincial Government to ensure that development potential of the new airport would be integrated effectively into the Oshawa sub-region and that the resulting new community would be of sufficient size to support a higher order of functions and services.

The subsequent postponement of a final decision on the airport led to a re-assessment of the North Pickering Project. The Government of Ontario has now reviewed and reaffirmed its commitment to the project as an important component in its policy of encouraging growth to the east. Development of Seaton is now planned to proceed in the early 1980's.

1.22 The Oshawa Sub-Region

A major element of the lakeshore urban concept is selective encouragement of growth east of Metro Toronto. Oshawa has been designated the regional centre for this area and a shift of growth toward it serves many critical objectives. This will help balance urbanization between the east and west of Metro, help diversify and strengthen the economic base of the Oshawa sub-region; provide some relief and restructuring possibilities for the highly developed Metro Toronto and western lakeshore areas; and enhance the diversity of choice for residential and employment opportunities.

The Oshawa sub-region is, therefore, of strategic importance, and it is in this context that the development of Seaton was proposed. It has an important, positive role to play in provincial sub-regional strategy.

1.23 Implementation of the TCR Concept

The process of refining and implementing the TCR Concept is underway, with a number of measures already evident. In addition to the Seaton Project, these have included major legislation such as The Parkway Belt Act, The Niagara Escarpment Act and The Ontario Planning and Development Act.

In 1973, the Province instituted a special task force to refine the portion of the TCR Concept corresponding to Zone I. This study, of the Central Ontario Lakeshore Urban Complex (COLUC) area, was completed in 1976. Its basic findings confirmed the two-tier concept of urban centres and the emphasis on development to the east of Metropolitan Toronto.

1.30 The Planning Process

1.31 The Provincial Project Team

The Provincial Government's announcement of the new community of the North Pickering Planning Area called for the establishment of a full-time planning team. The team consisted of a director and staff, linked to relevant provincial ministries and agencies by means of committees and task forces and included co-ordinators responsible for community design, agricultural planning, services, utilities and communications planning, social planning, transportation planning, economic planning, environmental planning and municipal government and finance.



Figure 1.20
Toronto Centred Region
Zone 1

Plantown Consultants

At the end of 1972, Plantown Consultants Ltd., a consortium of Canadian planning and engineering firms, was engaged to assist in preparing a plan for the North Pickering Planning Area. Plantown Ltd. was a corporate entity established by the Giffels Group, the Proctor and Redfern Group, James F. MacLaren Ltd., and Marshall Macklin Monaghan Ltd. Associated firms were Llewelyn-Davies Weeks Associates, P.S. Ross and Partners, James A. Murray, DeLeuw Cather Canada Ltd., Ecoplans Ltd., D.M. Connor Development Services Ltd., Johnson Sustronk Weinstein and Associates Ltd., Dr. G.J. Theissen, and Leisure Consultants Ltd. Plantown Ltd. was disbanded in 1975, but a number of the member firms have continued to assist the Project team in various aspects of the project since that time.

1.32 Goals and Objectives

From the outset, goals and objectives shaped the planning process. They provided the indicators for monitoring the process in relation to expectations.

These goals and objectives covered many concerns, including the need for public participation, environmental protection, high social and economic standards and excellence in physical design. They are found in the many background papers* prepared during the planning process.

1.33 Public Involvement in the Planning

The Project encouraged involvement of individuals, agencies and citizen groups who have, or will have, an interest in the new community. The public planning process involved people who live on the site and in the area between Oshawa and Metro Toronto. It also included the affected municipalities and special interest groups relative to specific areas of planning such as economics, environment, social development, transportation, and agriculture.

To discover the potential desires and expectations of future residents, discussions were also held with groups elsewhere. These included new town residents, students, ethnic groups, senior citizens, and the handicapped.

*See bibliography in the Appendix for full listing.

In the spring of 1974, a series of open house planning meetings was held at the Project site and in Pickering, Oshawa, Ajax, Markham, Scarborough, North York and Toronto.

At the outset, planning information kits⁴ were distributed to interested people. They were supplemented with additional information as planning progressed, and during each phase verbal comment and written responses were elicited from participants. By the final planning phase, more than 1,200 people had formally registered interest in the planning process.

The response forms and briefs, together with comments recorded at the various public meetings and open house sessions, and the technical comments of the provincial, municipal, federal, and private agencies involved were incorporated into the evaluation process in each phase of planning.

1.34 The Four-Phase Planning Process

The plan formulation process is depicted graphically in Figure No. 1.34. It consisted of four major phases.

1.34.1 Phase I – Basis for the Plan (Summer 1973 to Winter 1973)

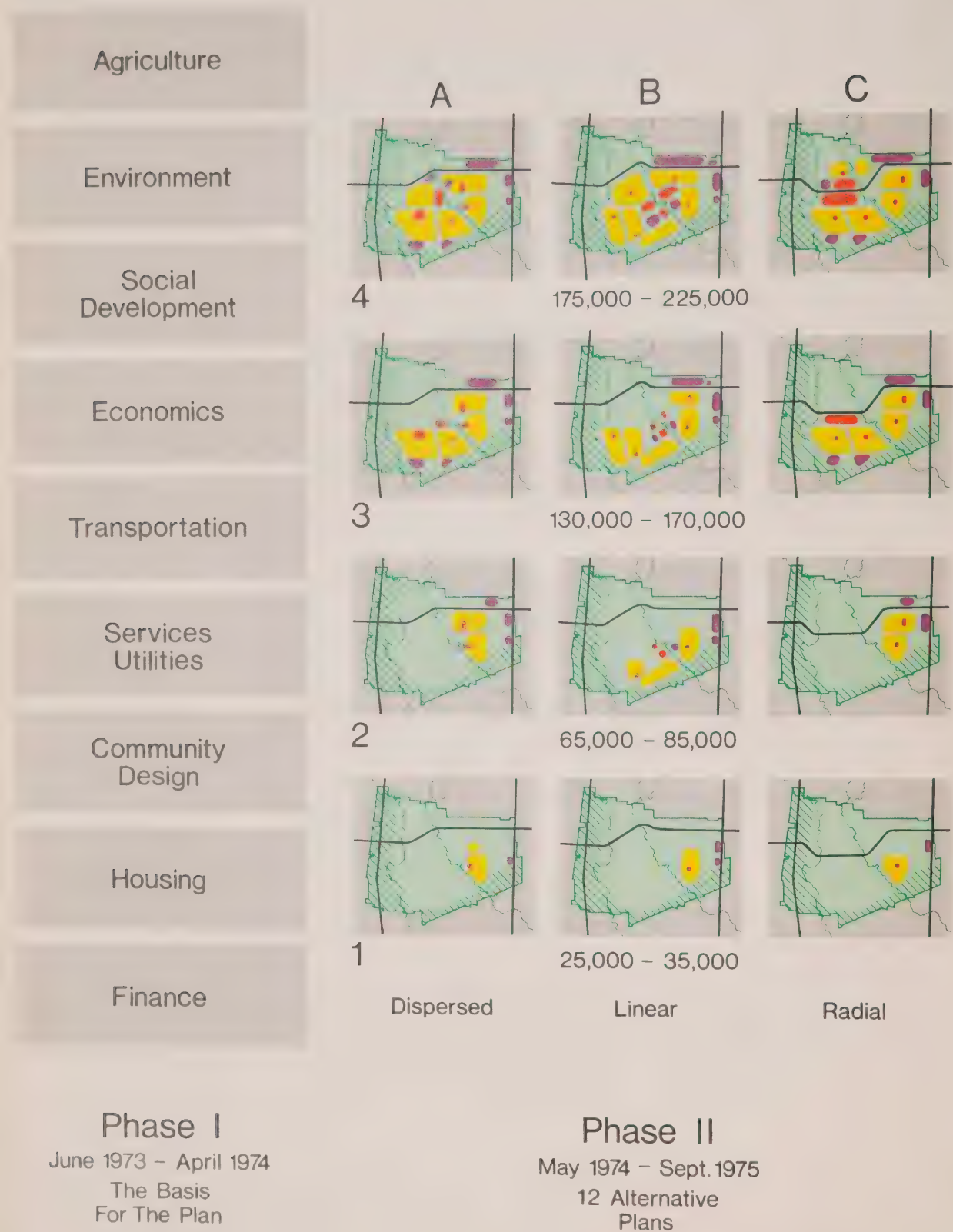
This phase consisted of investigations and studies by the planners to define the relevant social, economic and physical factors that would influence the Plan. Existing and prospective regional transportation, utilities, and communication networks were documented along with current and emerging state of the art with respect to technological innovation.

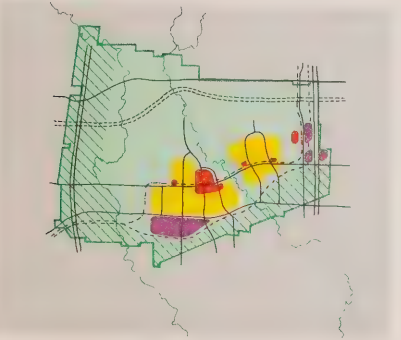
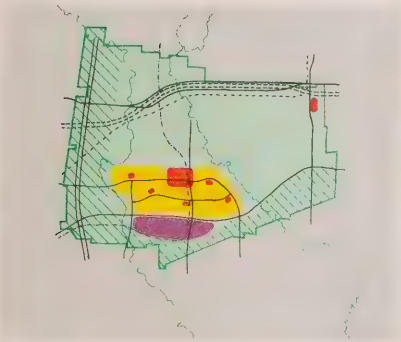
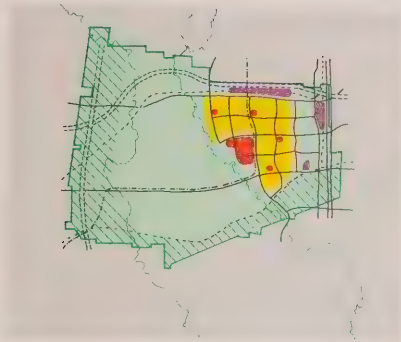
Background papers were prepared from these wide-ranging studies. (See Appendix.) The studies formed the foundation for "Towards A Basis For The Plan", an interim report⁵ which documented factors on which further planning would be based.

1.34.2 Phase II – Alternative Plans (Spring, 1974 to Fall, 1974)

Preliminary alternative planning concepts were prepared, illustrating a range of sizes and forms outlining population alternatives from 25,000 to 225,000 people. The concepts underwent public review and evaluation by the planners. The public indicated a preference for a population between 65,000 to 85,000 on the eastern part of the Planning Area.

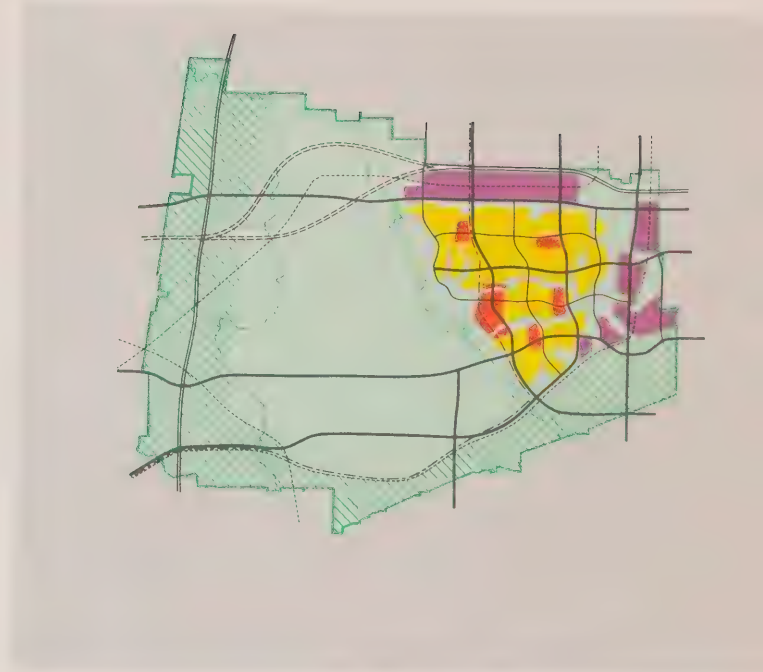
Figure 1.3 4 The Planning Process





70,000 – 80,000

Phase III
 Oct. 1974 – Dec. 1974
 3 Modified
 Concept Plans



75,000 – 90,000

Phase IV
 Jan. 1975 – April 1975
 The Recommended Plan

1.34.3 Phase III – Elaboration of Alternatives and Selection of Final Alternative (Fall, 1974 to Winter, 1974/75)

As a result of the public and technical review of the Phase II alternative concepts, three Modified Concept Plans were formulated, each relating to a population of 70,000 to 90,000 people and locating the urban community in different areas within the North Pickering Planning Area.

A public review process indicated quite clearly a preference for Concept Plan I, east of the West Duffin Creek. A technical review also found that this concept best preserved the agricultural community⁶.

1.34.4 Phase IV – Detailing of Final Recommended Plan (Spring, 1975)

This phase entailed the formulation of the final Recommended Plan on the basis of guidelines which evolved from Phase III. These guidelines were:

- The plan for the North Pickering Planning Area would provide for two communities: one urban and the other agricultural. Urban development would be located east of the West Duffin Creek and the existing agricultural community to the west.
- The roles of the existing hamlets would be determined in collaboration with their residents;
- Approximately 400 hectares (1,000 acres) of industrial land would be provided;
- A rebuilt Highway 7 and a new Highway 407 would be located within separate rights-of-way. Provision would be made for east-west links to major roads, such as Steeles Avenue, Finch Avenue, and Durham Road 4. North-south links would be provided to Highway 401 via Whites Road and Brock Road;
- A comprehensive Sub-Central Area would be planned.

1.35 Planning Activity since 1975

Since the Recommended Plan was formulated in 1975, it has been subject to continuous review and refinement. Additional studies have been

undertaken on the economic, transportation, environmental, storm water management and retailing aspects of the project. The following changes have been made in the plan as a result:

- The housing mix and rate of development have been adjusted to reflect the housing market trends apparent in the late 1970's. The build-out period to reach the ultimate population is now expected to be over 30 years, rather than the 15 years previously estimated;
- Changes in the internal and external arterial road pattern have been made on the basis of new information and studies;
- The greenspace system within the urban community has been carefully restudied with the objective of maximizing the efficient development of the whole site, while retaining environmentally sensitive lands and important parks and linkages within the system;
- One of the Community Central Areas has been deleted and its functions combined with those of the Sub-Central Area. The retail components of the Sub-Central Area have been revised as a result of the findings of the retail study;
- The school system has been replanned to reflect the trend in declining school enrolments;
- The total amount of industrial land has been increased to approximately 723 hectares (1,800 acres).

1.40 Summary Description of the Plan for Seaton

The essence of the plan is the development of a comprehensively planned community capable of achieving a careful balance of housing, employment and social goals within a sound planning framework.

The planned uses for the total North Pickering Planning Area include three distinct components:

- an urban community east of the West Duffin Creek on 2,840 hectares (7,030 acres);
- an agricultural community west of the West Duffin Creek on 4,130 hectares (10,210 acres);

- an Open Space System along the south and west boundary of the Planning Area on 3,220 hectares (7,960 acres).

TABLE 1.40.1
SEATON URBAN COMMUNITY
LAND USES

	<u>Area</u>	
	<u>Hectares</u>	<u>Acres</u>
Residential	940	2,324
Industrial	723	1,786
Commercial	75	185
Open Space	499	1,234
Transportation	354	874
Institutional	78	194
Future Study	173	428
	<hr/>	<hr/>
	2,842	7,025

1.41 Urban Plan Recommendations

1.41.1 Population

Seaton is planned for 75,000-90,000 persons, balanced in terms of its socio-economic characteristics. Such diversity will be encouraged by a comprehensive range of policies and programmes that offer a wide scope of housing, employment and social opportunities.

1.41.2 Housing

Housing should attract and serve people with a wide range of values, ages, preferences, incomes, life-styles and family circumstances. To achieve this, housing forms, costs and tenure will match the people, not the reverse.

In order to avoid the traditional new town distortions of only young families, policies and strategies will encourage the matching in the early years of the social and economic characteristics of a mature community. The community will provide a full range of housing by price and density.

TABLE 1.41.1
HOUSING DENSITIES AND LAND UTILIZATION

Density	Dwelling Units*		%	Persons per Dwelling	Dwellings**	Area**		Persons
	Hectares	Acres				Hectares	Acres	
Low	20	8	50	3.2	12,971	656	1,622	41,507
Medium	37	15	35	3.0	9,080	245	605	27,240
High	100	40	15	2.3	3,891	39	97	8,949
TOTAL					25,942	940	2,324	77,696

Average residential density: 83 persons per hectare
; 33 persons per acre

* All areas given are net, i.e. include housing land and access roads only.

**Area figures have been rounded to nearest acre or hectare; numbers of dwellings have been calculated on unrounded data.

1.41.3 Employment

It is the intention to build a new community in which residents may choose to both live and work and:

- to balance the number of jobs with the size of the labour force living in the new community;
- to have a large part of the resident labour force both living and working in the community;
- to provide a wide range of job opportunities in office, professional and industrial employment;
- to provide industrial and commercial assessment in a ratio of 40:60 to residential assessment, in accord with Town of Pickering policies;
- to take advantage of, rather than be dominated by, the proximity of Metropolitan Toronto.

A total of 31,500 jobs is contemplated; 21,000 industrial jobs can be provided on the 723 hectares (1,800 acres) of industrial land in the northern and eastern sections of the urban area. Some 10,500 service and retail jobs are proposed to match the employment needs of the population.

1.41.4 Structure

The community is structured into a three level hierarchy:

- The Sub-Central Area - to serve most of the one-of-a-kind needs of the community of 75-90,000*;
- Community Central Areas - to serve the needs of a population of 18,000 to 20,000;
- Neighbourhoods - to accommodate a population of 4,500 - 5,000 each.

*The Main Central Area of the Town of Pickering, located outside Seaton, will provide it with higher order services.

An internal road system, based on a 1 kilometre grid, provides a transportation network for private and public vehicles. The system consists of an overlapping or alternating grid of major and minor arterial roads.

Major Arterials will be higher speed, low access roads connecting the community to the road network in the surrounding region.

Minor Arterials will be lower speed, higher access roads which will not only distribute traffic to the major arterials but also accommodate short distance internal trips.

1.41.5 Sub-Central Area

A single, comprehensive "sub-central area", of 80-100 hectares (200-250 acres) serving as the main centre for the community is located along the dramatic eastern rim of the West Duffin valley. This "heart" of the community will be a multi-use area providing major commercial, office, social, cultural and recreational facilities for the residents of Seaton.

Development of the sub-central area will begin as part of the third stage of Seaton. Initially, the commercial area will be anchored by one department store, with later addition of one or two more as Seaton nears completion.

The retail base for the sub-central area at ultimate development in Stage 4 will consist of up to three department stores and associated comparison goods shops totalling 57,000 - 74,000 sq. m. (600,000 - 800,000 sq. ft.). Other major components of the sub-central area will include: hotel, offices, apartments, entertainment, churches, dining, major recreational and cultural facilities plus a regional transit interchange.

1.41.6 Community Central Areas

The plan proposes three community central areas, providing the day-to-day needs of the approximately 20,000 people living in the adjacent neighbourhoods.

These centres, each about 3 hectares (8 acres), are located at the intersection of a major and minor arterial road and will have a convenient walk-to and drive-to relationship with the adjacent neighbourhoods and the wider community respectively. Each centre will contain a diverse range of facilities for both the immediate and wider catchment areas.

Such facilities include, among others, a supermarket plus associated convenience shops, a community health clinic, a church campus complex, and a daycare centre.

A derivation of a community central area will be located within the sub-central area to provide the appropriate range and scale of services for those living within this area and in the immediately adjacent neighbourhoods.

1.41.7 Neighbourhoods

The basic residential component in the Plan is the neighbourhood. Each neighbourhood of approximately 50 hectares (125 acres) can accommodate a population of about 4,500 - 5,000 persons.

There are a total of 15 neighbourhoods, each bounded by major and minor arterial roads, all sides being approximately one kilometre long in most instances.

A neighbourhood can include housing types from all density and price ranges. The focal point of the neighbourhood is the elementary school, a neighbourhood park and associated walkway system. These uses should be located together, and in principle be situated centrally within the neighbourhood structure so children can reach the school and park without having to cross an arterial road.

The neighbourhood will also contain a daycare/nursery centre and each pair of neighbourhoods will share a small convenience shopping facility of .2 hectare (.5 acre).

The daycare/nursery can be located in a number of alternative locations, ranging from its own building to sharing space in a church or elementary school.

Local convenience shopping will be located on a minor arterial road.

1.41.8 Social Plan

The plan strives for a comprehensive social programme for all members of the community throughout their lifetimes based on variety, choice, access, flexibility and opportunities for social enrichment. During implementation, O.L.C. will co-operate closely with the Region of Durham and the Town of Pickering in social planning. Facilities, where appropriate, should be grouped physically and linked organizationally to enhance the effective use of physical, financial and human resources. financial and human resources.

1.41.9 Public Transit

The planning of the public transit system is based on decreasing the reliance on the automobile by offering a convenient, efficient and attractive alternative from the outset of the development of Seaton.

A bus system operating on the arterial road system can best respond to the local transit needs of 75-90,000 persons. It will serve all areas of the community but focus on the sub-central area.

1.41.10 Open Space and Recreation

The plan incorporates a comprehensive and interlocking network of open spaces based primarily on existing natural features. At the largest scale are the natural valleys and major woodlots. Farther down the scale are the existing stream tributary systems, significant hedgerows and minor woodlots. At the micro scale, a detailed open space system is envisaged as an integral component of each neighbourhood.

All of the main recreation areas, from the largest parks and playing fields down to the smaller neighbourhood parks and tot lots, are part of this overall framework. Recreational and park facilities will be connected by a comprehensive vehicular-free pathway system throughout the total community to accommodate the short and long distance requirements of hikers, strollers, joggers, and cyclists. A large central park is proposed to complement the sub-central area and possible recreational lake.

1.41.11 Phasing

The implementation of the plan has been phased into four stages over 25-30 years, each stage with a population of from between 10,000 and 38,000 persons.

These stages are:

Stage	Population per Stage	Cumulative Population	Approximate Timing
1	16,000	16,000	1982-88
2	14,000	30,000	1989-94
3	10,000	40,000	1995-97
4	38,000	78,000*	1998-2008

*This may range between 75,000 and 90,000 depending on future housing demand.

The pace of development is to be continuous, rising from 250 dwelling units per year to a peak of 1,200. Both housing and industrial development will be provided simultaneously.

Stage 1 will contain one community central area, four neighbourhoods, and industry in the south-easterly area. The sub-central area is expected to commence near the beginning of Stage 3.

1.42 Freeways and Regional Access

The role of the freeway network is to serve inter-urban and inter-regional vehicular traffic. The freeways around the community will not only provide direct regional access both to and from Seaton, but will also enable regional through-traffic to pass externally around the community and not through it.

1.42.1 Highway 407

Highway 407, which is part of the long-range transportation network being considered by the Ministry of Transportation and Communications, will be a controlled access freeway paralleling Highway 401 approximately 10 to 13 kilometres (6 to 8 miles) north. Ultimately it will extend from Metropolitan Toronto to Highway 35/115. The proposed alignment, situated

across the northern boundary of the site, will provide direct access to and from the Seaton Community.

1.42.2 East Metro Transportation Corridor

The proposed East Metro Transportation Corridor, currently under investigation by the Ministry of Transportation and Communications, will be situated in the Open Space System. It will provide a major north-south connection between Highways 401 and 407.

1.42.3 Highway 7

Highway 7 is proposed to be re-aligned and expanded to function as a major east-west facility for the community. Parallel to and south of the proposed Highway 407, it will provide direct access to and from the community.

1.42.4 Finch Avenue, Steeles Avenue

Finch and Steeles are possible as major east-west arterials across the southern part of the site to provide continuity between the road system in Metropolitan Toronto and the Region of Durham. The development of these roads is in conformity with the Regional Transportation plan.

1.42.5 Brock Road, Whites Road

Brock Road and Whites Road, under the jurisdiction of Durham Region, presently provide good access to the south. As part of the community development, these roads will conform to the Durham Transportation Plan connecting the community with Highway 401.

1.42.6 Highway 401

The Ministry of Transportation and Communications is currently proceeding with a major upgrading program for Highway 401, including widening and ramp improvements. The improvements include the development of the Whites Road interchange. Whites Road is to be ultimately developed as a direct route to and from Seaton.

1.43 Rail Service

It is recommended that an alignment be reserved for the C.P.R. Havelock rail-line, to be relocated across the northern part of the community, in order to service the industrial lands in the northern part of the Community.

1.44 Services

A number of regional services pass through or are adjacent to Seaton and can easily be made available to it. The level of standards for local and municipal services within the community will be equal to those traditionally provided. All services will be underground.

1.44.1 Water and Sewage

Connections are proposed to the Ministry of Environment's York/Durham Sewage Service System and the Region of Durham's Water Supply System.

1.44.2 Storm Water

The use of storage ponding areas to increase the environmental protection of the local watercourses is recommended.

2. Regional Context

2.10 Regional Land Uses

Seaton is situated in one of the fastest growing urban regions on this continent. The Toronto Metropolitan Area ranked 11th in terms of residential building starts for all urban housing markets in the United States and Canada in 1978.

The Central Ontario Lakeshore Urban Complex (COLUC), with eight per cent of Ontario's improved farmland and 11 per cent of the Class I and 2 soils, also has a significant food producing capability.

The population of Metropolitan Toronto grew from 1.1 million in 1951 to nearly 2.1 million in 1971. Since 1971 the Toronto Region, including Regional Municipalities of Durham, York and Peel, has grown from 2.7 to 3.0 million in 1978, but the population of Metropolitan Toronto has changed very little, and still stands at 2.1 million. The real growth has occurred in the Regional Municipalities.

The projected population of the Toronto Region in 2001 is 4.4 million, representing a growth of 60,000 people a year. Most of this growth must be accommodated outside Metro Toronto, as Metro is almost completely developed.

Growth has historically been stronger to the west of Toronto. In 1970, housing starts in the Mississauga sub-region outnumbered starts in the Oshawa sub-region by four to one; by 1973 this ratio rose to nearly eight to one. However, more recently a change in this pattern has become apparent with the ratio dropping back to two to one in the period 1976 - 1978.

TABLE 2.10
PROJECTED REGIONAL GROWTH (1971-2001)

	Population (000,000)		Increase (1978-2001)	
	1978	2001	Percent	Persons/Yr.
Metro Toronto	2.1	2.5	19	15,000
Adjacent Municipalities	0.9	1.9	110	45,000
Toronto Region	3.0	4.4	47	60,000

The expansion of industrial activity has paralleled the population growth. From 1951 to 1971, manufacturing jobs increased from 187,000 to 334,000. Industry has been shifting from the city to the suburbs and, more recently, to the municipalities adjacent to Metro Toronto.

Major land use problems in the greater Toronto area include the heavy concentration of office employment in downtown Toronto, the mis-match of housing and job opportunities in most urban centres; and the concentrations of development pressures to the west and north of Toronto. Together, these problems have resulted in rush hour commuting pressures which inconvenience people and place a heavy load on transportation facilities. Since both the size of the labour force and the percentage of office employment are expected to increase in the next 15 years, these problems will intensify unless a shift is made in the pattern of development.

Even though Seaton is the size of a medium city, it could accommodate less than two year's growth for the Toronto Region.

2.11 The New Toronto International Airport

The proposed site for the New Toronto International Airport (NTIA), comprising approximately 7,200 hectares (18,000 acres), lies immediately north of the North Pickering Planning Area (See Figure 2.11). This facility was proposed in 1972 as a minimum international airport, initially with one runway and appropriate passenger and terminal facilities. Construction of the airport has been postponed indefinitely. However, Seaton is viable with or without the airport.

2.12 Municipal Plans

The North Pickering Planning Area is located in three local municipalities and three regional municipalities: the Town of Markham, the Town of Pickering and the Borough of Scarborough, and the regional municipalities of York and Durham plus Metropolitan Toronto (See Figure 2.10 - Regional Land Use). Seaton is totally within the Town of Pickering.

2.12.1 Regional Municipality of Durham Official Plan

All of the proposed Seaton urban community is located within the Town of Pickering and the Regional Municipality of Durham.



Figure 2.10

Regional Land Use



The Official Plan of the Regional Municipality of Durham⁹³ was approved by the Minister of Housing on March 17, 1978. Among the primary functions of the Plan is the establishment of the future development pattern of the Region and the provision to area municipalities of guidelines for the preparation of District Plans and other development measures.

The Plan shows the limits of the proposed Seaton community and requires that "the various components of the North Pickering Major Urban Area will be detailed in an amendment to this Official Plan". This latter requirement was made as a Minister's Modification to the Draft Official Plan, which had previously identified North Pickering as a Special Study Area. The plan assigns an ultimate population capacity of 90,000 people to the Seaton Major Urban Area.

2.12.2 The Town of Pickering District Plan

The District Plan for the District Planning Area of the Town of Pickering⁹⁴ is now before the Minister of Housing for approval. The Plan was prepared in accordance with Section 5.2.2 of the Durham Plan, which provides for District Plans for area municipalities.

The function of the District Plan is to contain more detailed policies than the Region Plan, relating to land uses, housing densities and mix, transportation, open space, recreation, community services and urban design. The District Plan is specifically charged by the Region Plan to address certain items, such as policies relating to central area development, and definition of detailed industrial land uses, community boundaries and collector roads. The District Plan provides for the preparation of Community Plans for the planning communities into which the Town is divided.

One of the effects of the proposed amendment to the Region Plan will be the substitution of a revised planning review process in lieu of the community plan approval process which applies elsewhere in the Town.

Existing and Proposed Development

The 1978 Town of Pickering population was approximately 34,000 people. The potential population which can be accommodated south of the "Open Space System" of the North Pickering Planning Area is estimated at 100,000.

Present development proposals consist of fifteen subdivisions which would add approximately 5,000 people to the present population.

Significant development north of Highway 2 and west of Whites Road will not commence until completion of the secondary plan for this area and until the York-Durham Sewage System is in operation.

The Brock industrial district is bounded by Highway 401 to the north; the Town of Ajax to the east; Lake Ontario to the south and the Bay Ridges community to the west. This is the primary industrial district in the southeast Pickering urban area.

Of the total 483 hectares (1,194 acres) of industrial land available in this district, 100 hectares (246 acres) had been serviced and occupied by 1979. An equal amount is serviced but not occupied.

There are approximately 121 hectares (300 acres) of industrial land elsewhere in the Town of which 18 hectares (45 acres) were occupied in 1979.

2.20 Regional Transportation

2.21 Regional Roads

2.21.1 External Roads

The main transportation facility near the site is Highway 401 to the south (See Figure 2.21) which was recently widened to six lanes. Highway 401 has interchanges serving the site at Brock Road, Liverpool Road, and Port Union Road (via Highway 2). The Ministry of Transportation and Communications plans to eliminate the Liverpool Road interchange in the future and construct a new interchange at Whites Road.

The other existing major roads include Highways 2, 7, and Brock Road. Highway 7 and Brock Road will be widened to four lanes when traffic conditions justifies such an expenditure.

Two new transportation facilities, Highway 407 and the East Metro Transportation Corridor, are currently under study. The primary objective of these facilities would be to serve inter-regional and recreation travel east and north of Metro and to relieve the pressures on Highway 401.

In addition, major Regional road connections between Durham and Metropolitan Toronto are under investigation. These include:

- Steeles Avenue - Taunton Road Connection
- Finch Avenue - Rossland Road Connection

2.21.2 Internal Roads

Existing road facilities of Regional significance within the site include:

- Regional Road No. 1 (Brock Road)
- Concession 3 (Rossland Road)
- Concession 4 (Taunton Road)
- Concession 5 (Whitevale Road)
- Regional Road No. 27 (Altona Road)
- Regional Road No. 30 (Townline Road)
- Regional Road No. 38 (Whites Road)

Although not classified as Regional Roads, Concessions 3 and 5, under the jurisdiction of the Town of Pickering, provide access to and from the existing Regional Roads to hamlets within the North Pickering Planning Area.

The above roads, as well as others in the immediate vicinity of the site, will be upgraded and expanded to form the major transportation network for the Regional road system in the southwestern area of Durham.

This is illustrated in Figure 2.21 in which the proposed road facilities are based upon the Durham Region Transportation Study of 1976.

2.22 Regional Transit

2.22.1 Existing Situation

At present, GO trains run as far as the Liverpool Road station. GO express buses operate from there to Oshawa. The Liverpool Road station is about 6½ km. (4 mi.) from the centre of Seaton (See Figure 2.22).

The Toronto Area Transit Operating Authority recently increased the seating capacity of the trains by introducing double-deck cars.

The existing CP Rail line to Havelock provides a dayliner service from Havelock through Agincourt and Leaside to Union Station in Toronto. It stops at Locust Hill on the morning inbound trip and on the evening outbound trip.

2.22.2 Future Possibilities

The Toronto Area Transit Operating Authority has been reviewing the need to upgrade the Lakeshore GO Transit service. In the long term this could result in higher levels of service such as a rail extension to Oshawa.

The application of intermediate capacity transit systems (ICTS)* in the Metro area is actively being pursued. Construction of a light rail transit system (LRT) has been approved by Metropolitan Toronto from the eastern end of the Bloor Subway (Eglinton and Kennedy) to the Scarborough Town Centre. Conceptual plans prepared by the TTC have identified an extended alignment of this system to the Malvern Centre.

If this line were built, the feasibility of extending it to Seaton should be considered at the appropriate time. This would be in the context of service extensions to the Region in general.

2.23 Regional Rail

Both CP Rail and Canadian National Railways have facilities in the area.

The CN Kingston line follows the shoreline of Lake Ontario to the west and to the east of the Pickering GO station follows an alignment just south of Highway 401.

The CN York line cuts diagonally across the southwest part of the North Pickering Planning Area, linking up with the CN Kingston line just west of the Pickering GO station. It provides a Metro bypass and a connection between the Maple marshalling yards and the Kingston line at Liverpool Road.

*ICTS refers to Intermediate Capacity Transit Systems which could involve the use of light rail transit vehicles (LRT) such as some form of updated streetcars, or new small vehicle technology allowing for combined express and local operation, such as the GO Urban system.

Figure 2.21

Regional Roads

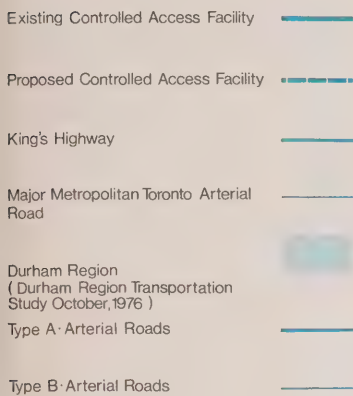
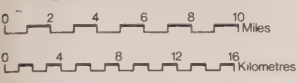
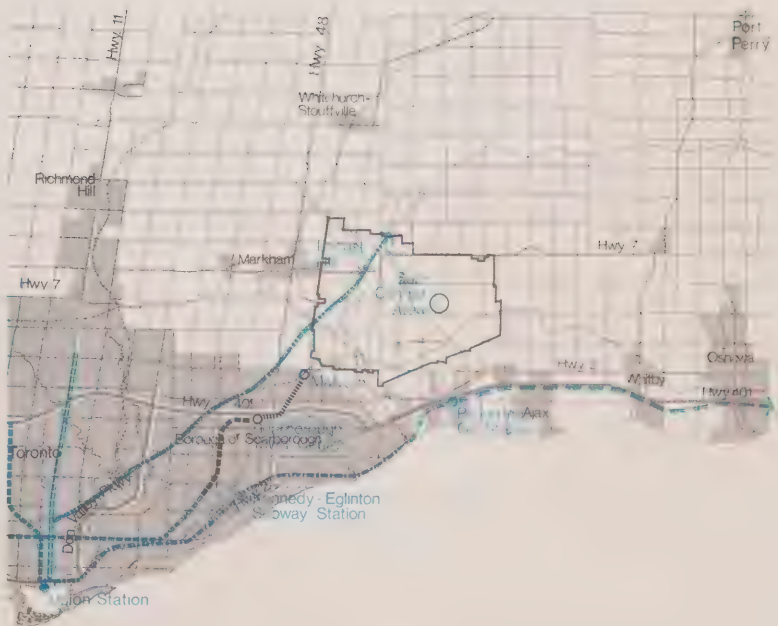
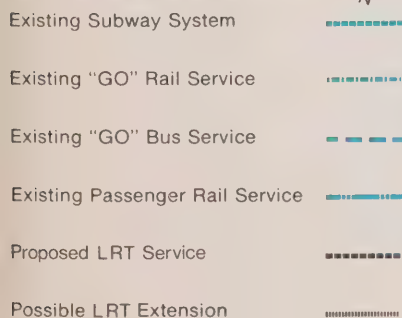


Figure 2.22

Regional Transit



The CP Rail Havelock line crosses the northwest corner of the Planning Area. Traffic on this line from Toronto to Havelock includes the one freight movement each way six days a week.

The CP Rail Belleville line runs along the southern part of the Planning Area and forms part of the boundary of the Open Space System.

2.30 Regional Services and Utilities

2.31 Electrical Power

The Pickering Nuclear Generating Station is located directly south of Seaton on the shore of Lake Ontario.

The Gatineau 230 kilovolt (kV) power transmission line runs east-west along the southern boundary of the Planning Area. This line east of Cherrywood will be upgraded to carry 500 kV lines from the Pickering generating plant to the east of Oshawa.

A new 500 kV power line has been proposed from Nanticoke on Lake Erie to the Cherrywood Transformer Station. This line will be located along the general alignment of the existing Finch Hydro Corridor running in an east-west direction just south of Martin's Subdivision.

The Finch 230 kV power line enters the western part of the Planning Area between Steeles and Finch Avenue, passes just south of Martin's Subdivision and connects to the Cherrywood transformer station.

An additional 230 kV line cuts across the middle of the Planning Area together with the existing Trans-Northern oil products pipeline. It is planned that this power line east of the West Duffin Creek will be decommissioned by 1986.

2.32 Pipelines

The 250 mm. (10") diameter Trans-Northern Pipeline, follows an alignment through the site as noted above. This line is capable of carrying a variety of refined petroleum products.

A new 750 mm. (30") diameter interprovincial oil pipeline has been located along the northern side of the CPR Belleville line in an 18 metre (60 foot)

corridor. This line will carry crude oil from Sarnia to Montreal.

2.33 Sewage and Water System

The Central Duffin Collector sewer which will connect Seaton to the York/Durham Trunk sewer will be provided by the Ministry of the Environment as one of the components of the York/Durham sewage service system. Sewage will be conveyed for treatment to the Duffin Creek Water Pollution Control Plant.

Present scheduling for the sewage systems call for completion of the main trunk sewer from the proposed treatment plant to the western boundary by late 1979 and the initial stage of the sewage treatment plant by early 1980. The Central Duffin Collector Sewer is proposed for completion in the fall of 1981.

The existing Pickering/Ajax Regional water supply system will provide for the water requirements of the new community.

2.34 The Metropolitan Toronto and Region Conservation Authority (MTRCA)

The Authority was established to develop a program for the conservation of the renewable natural resources on the 1,126 square miles of watersheds in the Toronto region from the Etobicoke Creek on Metro's west boundary to Carruthers Creek in Ajax. Major programs include flood control and water conservation, conservation areas for public use, reforestation, and fish and wildlife.

The regional system for flood control and water conservation being developed includes upstream storage reservoirs and the acquisition of flood plain and conservation lands in the heavily urbanized downstream areas.

2.35 Storm Drainage

Storm drainage has generally been a local responsibility, with controls for major water courses imposed by the Metropolitan Toronto and Region Conservation Authority.

2.36 Conservation Areas

The Metropolitan Toronto and Region Conservation Authority operates a number of parks close to the site. These parks offer a wide variety of outdoor activities, and are open all year.

Milne Park, 116 hectares (290 acres) south of Markham, has swimming and fishing.

Greenwood directly to the east of the community covers 300 hectares (750 acres). Its primary attractions are campsites and trout fishing on Duffin Creek.

Claremont, 160 hectares (400 acres) farther north, has 6½ miles of trails for hiking and horseback riding, a camping area and trout fishing.

MTRCA is acquiring the additional land in the Rouge River Valley required to complete a continuous open space system from the zoo to the lakefront. Along the lakefront, the authority proposes to eventually develop swimming areas, trails, a marina at Frenchman Bay, and a nature interpretation trail in the river mouth wetlands.

2.37 Golf Courses

A number of golf courses are located in the vicinity of Seaton, notably to the west. These include the following:

Morningside (public)	- 18 hole short course plus 18 hole par 3
Brookside (public)	- 27 holes
Cedarbrae (private)	- 18 holes
Parkview (public)	- 36 holes
IBM (private)	- 18 holes
Glen Cedar (private)	- 18 holes
Cherry Downs (semi-private)	- 18 holes plus 9 hole short course
Swiss Chalet (public)	- 18 hole par 3
Whitevale (private)	- 18 holes
Seaton (public)	- 18 holes

2.38 Landfill Sites

The Beare Road site, directly east of the zoo, will be filled by 1981. At that time it will be landscaped and used for skiing.

The 120 hectare (300 acre) Liverpool Road (Brock West) site in the Open Space System will be completed some time after 1981.

The proposed 400 hectare (1,000 acre) Brock North and South sites are due east of the new community and south of Highway 7. A portion of the area, owned by Metro Toronto, is presently being used as a gravel processing and storage plant. The Brock South site is approved for use but will not be used until the others are complete.

3. North Pickering Planning Area

The North Pickering Planning Area presents a remarkably diverse and attractive landscape used predominately for agriculture. Development to date has been sparse. Although localized problems can be expected, the overall area - outside the main valley system - does not present any major constraint to urban development nor continued rural use.

Although only part of the total Planning Area is being proposed for urban uses, it is of interest to examine the natural and man-made characteristics of the whole area in order to better understand the planning process which led to the selection of the area for urban development.

3.10 Physical Characteristics

3.11 Topography

The North Pickering Planning Area is generally flat and gently rolling (See Figure 3.11). It slopes gradually from the northwest down to the southeast from a high point of 223 metres (730' above sea level) near Highway 7 to a low point of approximately 107 metres (350') at the southern end of the West Duffin Valley.

The West Duffin Valley, one of the most dramatic topographic elements, cuts diagonally across the Planning Area in a north-south alignment. This valley is notable for its substantial width and steep high banks from the centre of the site southward.

The flattest land is west of the West Duffin Valley, while east of the valley there is more undulating and diverse terrain.

The Little Rouge Valley and East Duffin Creek tributaries are found on the west and east sides of the area respectively. In contrast to the West Duffin Valley they are less precipitous with low gently sloping sides.

The old Lake Iroquois shoreline is marked by a discontinuous escarpment crossing the southern part of the site in an east-west direction. The steep slopes of the Planning Area - those above ten per cent - are associated almost entirely with the stream valleys and the old shoreline. Areas of 5-10 per cent slopes are scattered through the site in a more irregular fashion.

3.12 Geology

The Planning Area is underlain by Paleozoic sedimentary bedrock of the Ordovician age. The overburden is composed of Pleistocene glacial material and deposits from Old Lake Iroquois.

Below the Lake Iroquois shoreline there are predominantly fine-to-medium silty sands of varying depths which were deposited as shallow water sediments in an offshore environment. Areas of large boulders and high ground water table are visible on the surface both east and west of West Duffin Creek.

Dense silt tills are found above the shoreline west of West Duffin Creek. To the east are dense stony and silty sand tills.

The main valleys of the area are the direct result of the glacial process. The Little Rouge and West Duffin Creek Valleys represent the remains of the glacial spillways.

3.13 Soil

The site is blanketed for the most part by a stratum of rich soil. The influence of mild climate on the site's geological formations resulted in the growth of deciduous forests which, in turn, assisted in producing this stratum of rich and slightly acidic topsoil.

The capability* of this soil for agricultural use has been rated largely either Class 1 or Class 2 (See Figure 3.13). Over 40 per cent of the site is covered by Class 1 soils. These soils are predominantly Milliken and Woburn clay loam. The majority is located west of the West Duffin Creek.

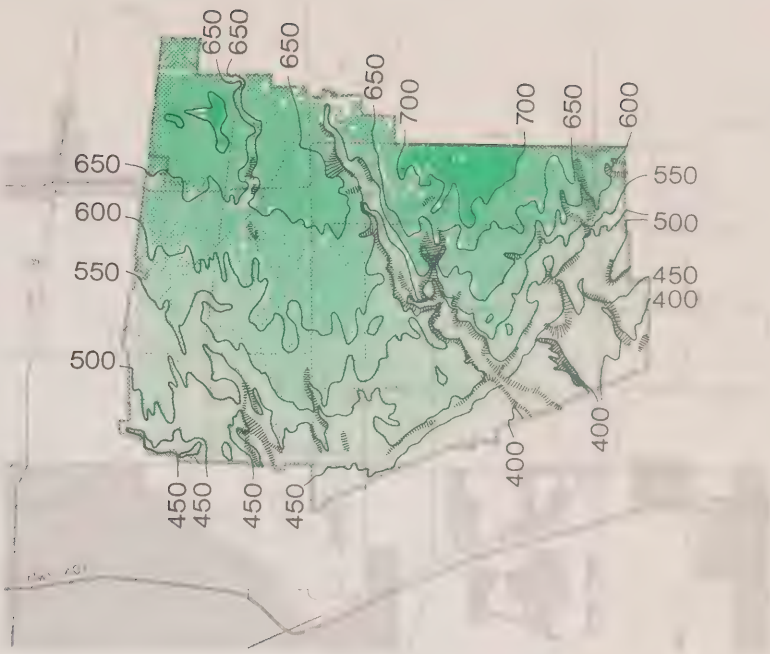
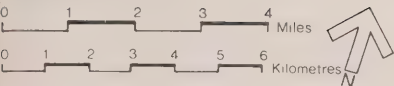
The poor soils are in the southeast corner and valley beds.

In general, the area west of West Duffin Creek has few restrictions on the type of farming, or crops that can be grown. To the east of West Duffin, except along the northern boundary, the poorer soil types and the generally more diverse topography limit agriculture.

*Canada Land Inventory

Figure 3.11

Land Form

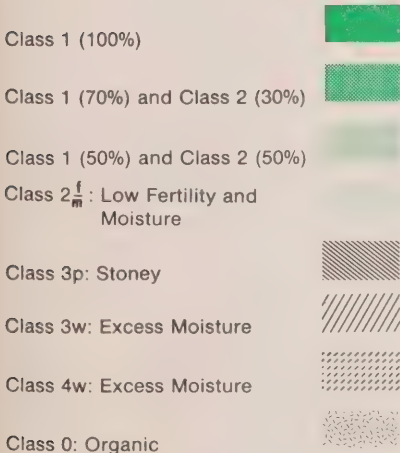
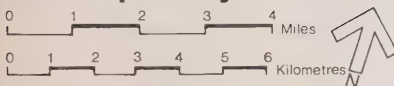


Steep Slopes



Figure 3.13

Soil Capability



3.14 Climate

The Planning Area falls within the broad climatic zone following the north shore of Lake Ontario. As a consequence, its general climatic conditions are similar to those experienced in both Metro Toronto and Oshawa.

Characteristics of this climate include moderate temperatures and mild winters due to the proximity of Lake Ontario. The mean daily temperature is 8°C. Summer temperatures average 24°C and seldom exceed 29°C, and winter temperatures rarely fall below -15°C.

The growing season averages 150 days beginning in mid-April.

The mean annual precipitation in the area is 86 cms. (34") of which 36 cms. (14") fall generally between May and September. Annual snowfall averages about 165 cms. (65").

Fog is a common seasonal problem in low-lying areas, and below the old Lake Iroquois shoreline.

Prevailing winds are primarily from the northwest; secondly the southwest. Over a 12 month period the dominant winds will be from the WSW-W. In winter, the major wind direction causing wind chill is from the NW-NE quadrant. Predominant wind direction during snowfall is from the NW-SW. Summer prevailing winds are predominantly from the WSW-W (See Figure 3.14).

3.15 Streams

The area is generally well-drained. It can be divided into four main catchment areas, each with a dominant stream fed by runoff and seepage (See Figure 3.15).

The most significant water courses are the Rouge River and the Little Rouge Creek, the tributaries of Petticoat Creek, West Duffin Creek and its tributary at Clarkes Hollow, and the tributaries of East Duffin Creek.

The West Duffin Creek system drains the central part of the Planning Area. This system drops over 95 metres (310') during its 9.7 km (six-mile) crossing of the site from north to south. The resultant rapid stream flow is a contributing cause of the extensive erosion along the base of the steep valley walls in addition to groundwater action and loose sand-silt till materials.

Petticoat Creek is a small, poorly defined water course.

The main streams and their tributaries are fed primarily by natural runoff from agricultural lands as well as natural ground seepage.

Due to the rural character of these watersheds, extensive bacteriological contamination has not yet occurred. Some contamination, nevertheless, is taking place.

A sewage treatment plant in Stouffville discharges effluent into the West Duffin system. In addition, farmers are using high-yield fertilizers that tend to deteriorate stream water quality.*

Significant sources of ground water are well below the surface over most area and do not appear to present major development difficulties.

3.15.1 Broad Summary of Existing Fisheries

The Rouge River watershed represents a warm water system due to a lack of bank cover along its tributaries and the existence of a number of private ponds. This results in fairly high summer temperatures that often exceed 25°C. In general there is also an increase in temperature downstream. Nutrient concentrations tend to be fairly high due to loading from agricultural runoff; however, dissolved oxygen concentrations are more favourable (over 6.0 mg/l).**

*A routine stream monitoring, conducted from 1974 to 1978, has confirmed the observations in this section.

**Source: Ontario Ministry of the Environment. 69

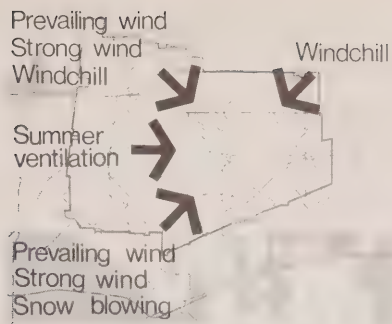


Figure 3.14
Wind Directions

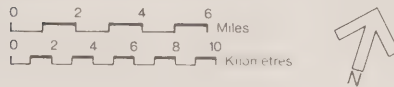
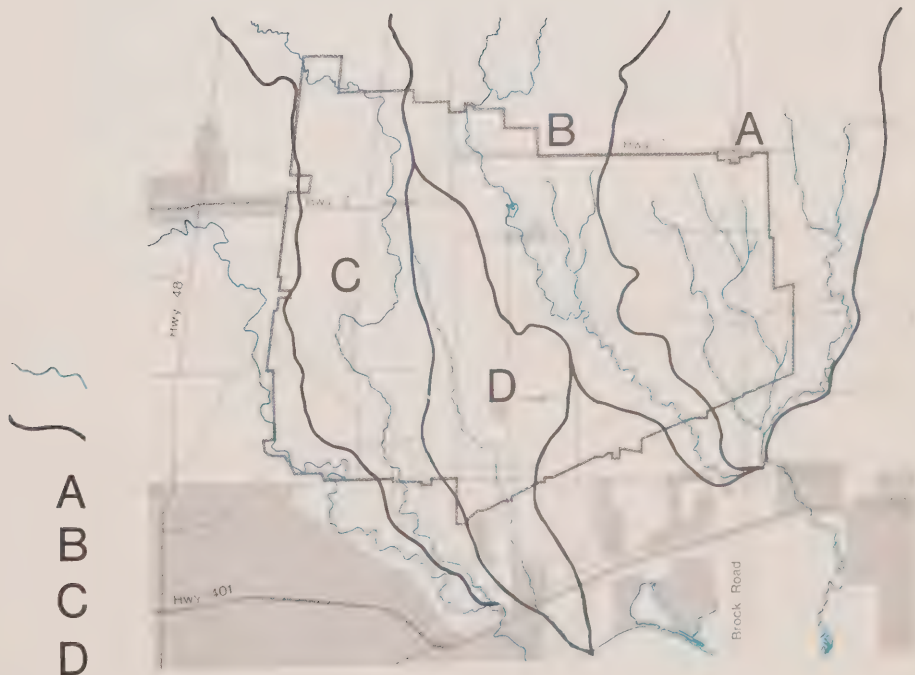


Figure 3.15
Stream Courses

- Main Stream Courses
- Main Water Sheds
- East Duffin Creek
- West Duffin Creek
- Little Rouge Creek
- Petticoat Creek



The West Duffin system above Whitevale supports brook trout in the Altona tributary and the Glasgow East tributary. However, existing water temperatures in some reaches above Whitevale exceed the lethal temperatures for resident brook trout.

The west branch of Duffin Creek below Whitevale exhibits environmental conditions which presently favour warm water species. The fish population in this portion of the watershed has included white sucker, stone catfish, minnows, Johnny darter, rainbow darter and rock bass. During the cooler season conditions are suitable for cold water species. Rainbow trout enter Duffin Creek to spawn in the tributaries (particularly in the east branch).

3.16 Woodlands

The plant, bird and animal life of the area is rich and diversified. The major reason for such variety is that the Planning Area is located in a transition area between two main biotic zones, the Carolina forest to the south and the Boreal forest to the north (See Figure 3.16).

Upland maple, beech and oak systems, representing the climax forest, characterize the woodlots outside the various creek systems. Most of these woodlots represent the rear lot lines of earlier farm operations. Hedgerows are abundant, with maple or white pine as the dominant species along with the last remnants of elm stands.

The valley systems, particularly the West Duffin Creek, tend to be dominated by white cedar stands with mixed poplar and willow species, all of which depend on wet ground conditions.

3.20 Land Uses

3.21 Past Settlements

Earliest indications of prehistoric human settlement of the area date back 6,000 years to the Archaic period.

The Duffin Creek watershed was inhabited by early Ontario Iroquois Indians from about 1000 to 1300 A.D. The late Ontario Iroquois dating from about 1400 to 1650 settled in the Rouge watersheds. Some archaeological sites have been found.¹⁹ The best preserved sites and greatest concentration occur mainly in the southwest quarter (See Figure 3.21).

Mennonite farmers arrived in the Markham area from Pennsylvania between 1796 and 1812. During this time, a number of American farmers also settled south of the 5th Concession. It was not until after 1816 that the wave of English, Scottish, Irish and Welsh immigration started, resulting in the complete habitation and intensive cultivation of Pickering by the 1820's and 30's.

Lord Seaton, Sir John Colborne, 1778-1853, was the Lieutenant-Governor of the Province of Upper Canada from 1828-1836. Often called one of Canada's ablest founders, Lord Seaton did a great deal to encourage agriculture and rural growth outside of York (Toronto). He was deeply involved with immigration, education and provincial growth.

Largely through his efforts, there was further settlement of the North Pickering area by families from the United Kingdom. While Lieutenant-Governor, Lord Seaton set up immigration agencies in specific settlements and provided government funds to needy immigrants. In return, they were required to work improving communications, building the roads, bridges and market facilities he felt were essential to agricultural growth.

The drop in rural population began in the 1870's with people moving west and into urban areas. Farms were abandoned or the land was consolidated in larger units. Fewer farm labourers meant an increased reliance on machinery.

Essentially, the pattern for the 20th century was set with mixed farming dairying and some stock breeding, and a small population reliant on machinery.

As the farms were cleared and surveyed, the Ontario concession road grid pattern developed in response to the community's travel needs. Rural life revolved around the villages or hamlets. They were the focal point for most community activity, and included Whitevale, Green River, Locust Hill, Cherrywood and the Cedar Grove area.

A total of 164 structures in the Planning Area have been identified as having architectural or historic significance.⁸ Most of these structures are in the hamlets, especially Whitevale. Other significant clusters are those loosely scattered along Whitevale Rd. and the Mennonite group at the intersection of Steeles Ave. and the Markham-Pickering town line.

Figure 3.16
Woodlands

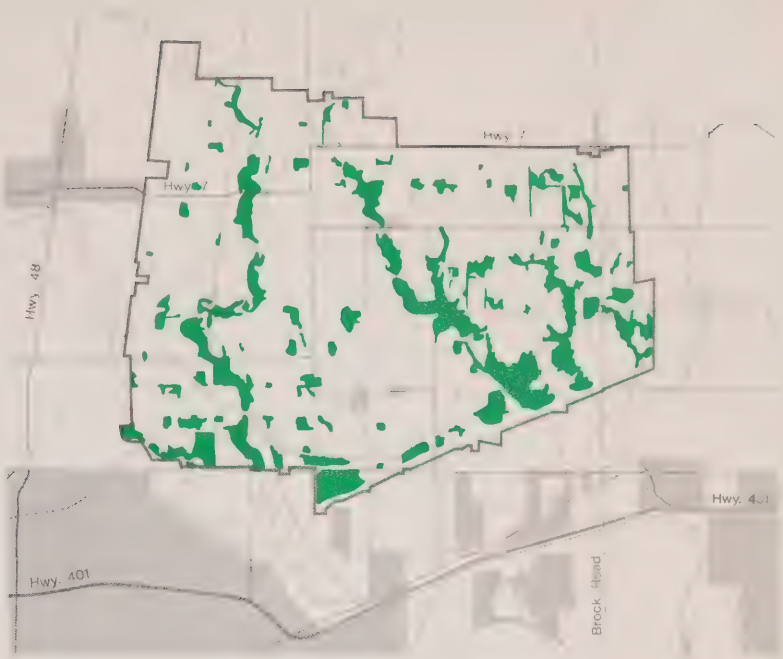
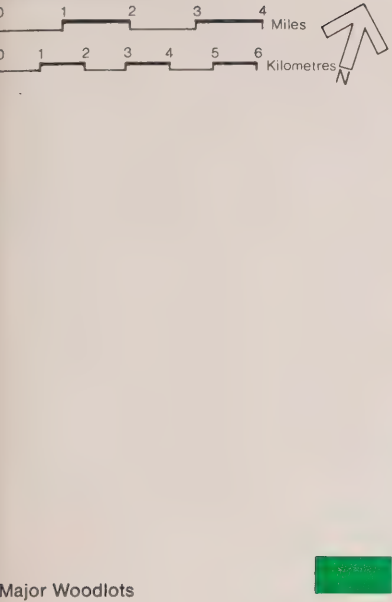


Figure 3.21
Historic Buildings and
Archaeological Sites

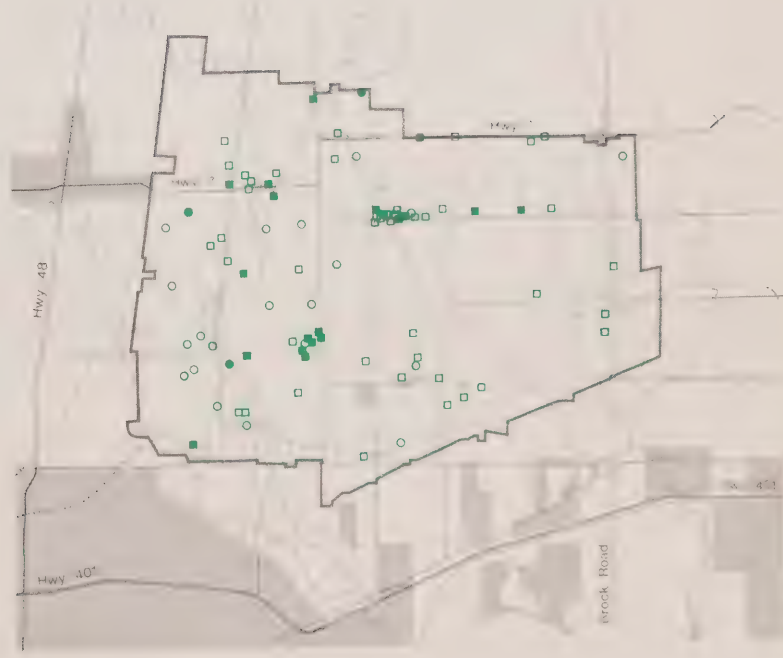
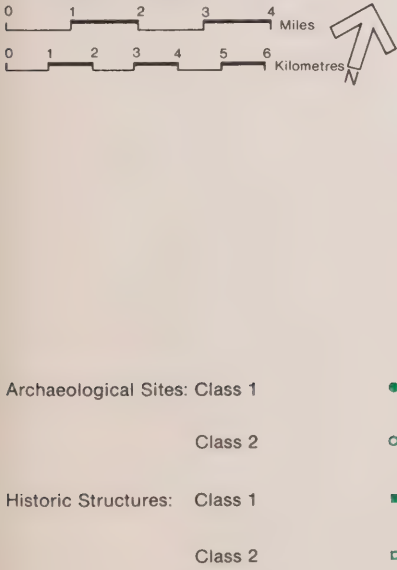


TABLE 3.22.1

EXISTING DEVELOPMENT

	Planned Urban and Agricultural Areas	"Open Space System"	Total Planning Area
<u>Residential Units</u>			
Farm Residences	169	61	230
Non-Farm Residences	396	166	562
Summer Cottages	73	0	73
TOTAL	638	227	865
<u>Community Uses</u>			
Commercial (Retail)	12	5	17
Commercial (Service)	6	2	8
Commercial (Office)	1	0	1
Industrial (Primary)	13	9	22
Industrial (Manufacturing)	10	1	11
Industrial (Transport)	3	1	4
Cemetery	5	1	6
Church	7	1	8
Senior Citizens' Institute	0	1	1
School	2	1	3
Red Cross	1	0	1
Parks & Camp Grounds	2	1	3
Golf Course	1	1	2
Arena & Community Hall	1	2	3
Pool	1	1	2
Library	1	1	2
TOTAL	66	28	94
<u>Farm Units</u>			
Agricultural Home Based	54	22	76
Agricultural Associated Units	49	0	49
TOTAL	103	22	125

Three sites of potential archaeological interest have been identified in the Stage I area. Notice will be given to the Royal Ontario Museum well in advance of construction, to allow an opportunity for excavation.

3.22 Existing Land Use

3.22.1 Agricultural Areas

The predominant land use in the North Pickering Planning Area is agricultural. Of the total 10,190 hectares (25,200 acres), approximately 5,000 hectares (12,300 acres) are being actively farmed. Of this 3,500 hectares (8,700 acres) are used for small grain crops, 1,250 hectares (3,100 acres) for corn and 200 hectares (500 acres) in orchards and row crops. (See Figure 3.22.1)

An additional 2,100 hectares (5,200 acres) are pasture grassland or generally uncultivated land.

The remaining 3,100 hectares (7,700 acres) consist of scrub land, woodlots, golf courses, rights-of-way, industrial or commercial areas, extraction uses and stream valleys.

3.22.2 Developed Areas

About 2,700 people live in the Planning Area in 850 dwellings. Approximately 30 per cent live in the settlements of Green River, Locust Hill, Whitevale, Cherrywood, Cherrywood East, Martin's Subdivision and Cedar Grove. All of these settlements are located either on or west of the West Duffin Creek. Most hamlet homes are in private ownership.

The remaining residential units are located along various concession roads and side roads, and are composed of both farm and non-farm dwellings. A fair number of the latter accommodate families who have left urban life for the countryside.

3.22.3 Gravel Pits

Commercial gravel operations were located along the old Lake Iroquois shoreline in the southeast corner of the site but have moved further east along the shoreline from the site. All such areas are now abandoned or used for landfill operations.

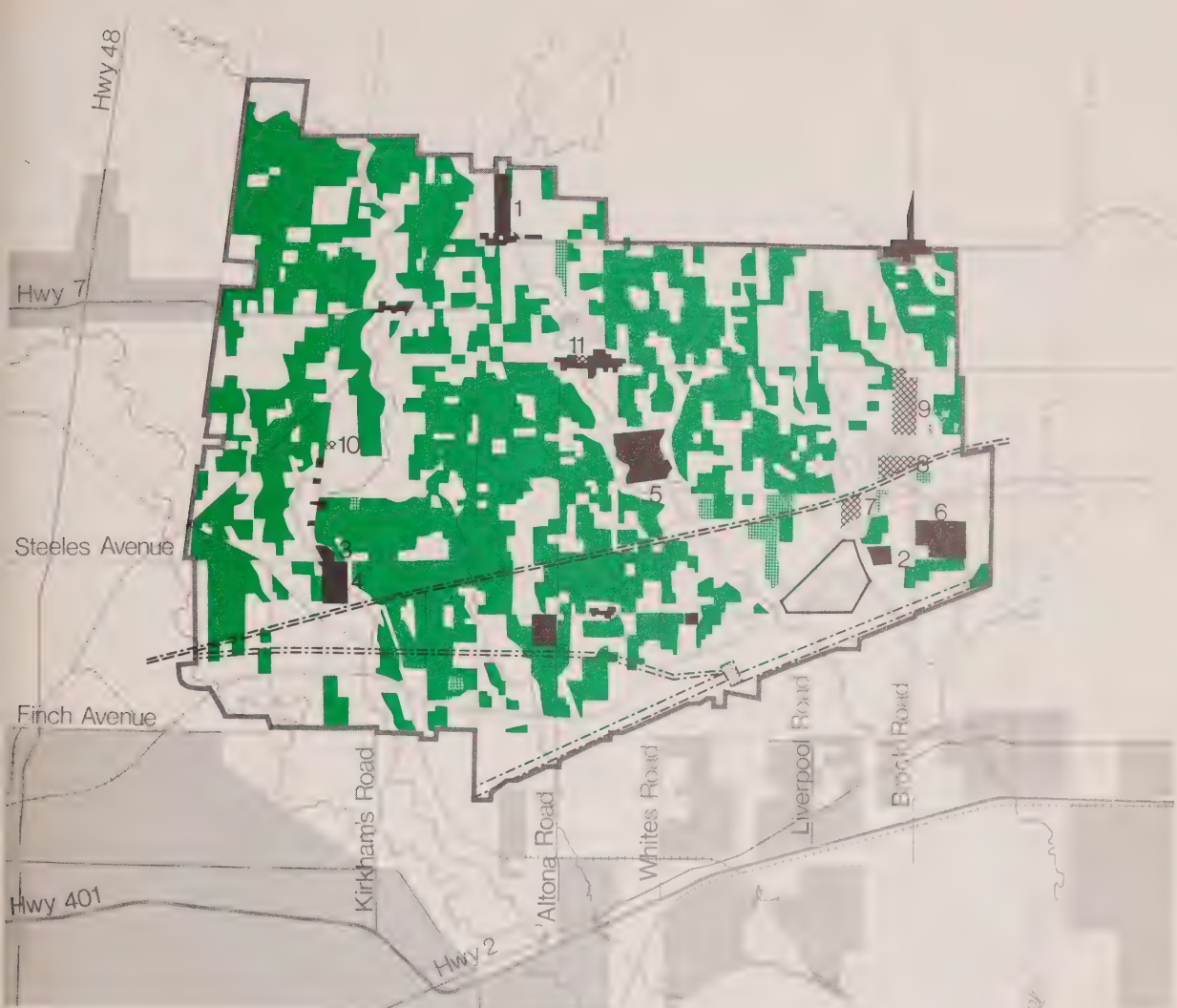
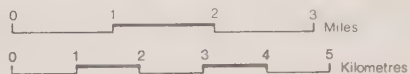


Figure 3.22
Existing Land Use



Green River Park	1	Existing Rural Settlements	
Work Yards	2	Industrial and Commercial Uses	
Cedar Grove Park	3	Gravel Pits	
Woodland Park	4	Landfill Sites	
Whitevale Golf Course	5	Hydro Lines	
Pickering Golf Course	6	Oil Pipeline	
Pickering and Storage Company	7	Farm Areas	
Contracting Company	8	Orchards	
Mushroom Farm	9		
Cider Mill	10		
Feed Mill	11	Cherrywood Transformer Station	

3.22.4 Recreation Areas

There are two golf courses within the Planning Area. Whitevaie Golf Course, an 18 hole private course, is on the rolling landscape alongside West Duffin Creek southeast of Whitevale; Seaton Golf Course, located in the open space system east of Brock Road, is a public 18 hole course in the treed valley of a Duffin Creek tributary.

The North Pickering Hiking Trail was opened in 1976 and is used year round by local as well as regional residents. The trail extends along West Duffin Creek from Green River in the north to Camp Pidaca in the south.

An Outdoor Recreation Association has been formed by the Town of Pickering. In addition, the town has recently commenced a parks and open space plan. The West Duffin Valley is regarded as an integral part of the plan.

3.22.5 Camping Grounds and Parks

The other recreation areas include four parks and camping grounds.

Woodland Park is just south of Cedar Grove. This well-treed site is primarily used as a trailer park. There are picnic tables and outdoor cooking facilities. Little Rouge Creek passes through it and a spillway can be closed off for swimming. There is also an archaeological site of some historic significance.

Wilson Park, formerly a private park, has been phased out and returned to its natural state. It is likely that ownership will fall under the MTRCA and the area will be used for public recreation.

Green River Park, on the West Duffin Creek, is primarily for picnics. There is a swimming pool with filtration and chlorination equipment.

Cedar Grove Park, at the northeast corner of Steeles Ave. and Tenth Line intersection, just north of Woodland Park, is a combined sports and picnic ground. There is a baseball diamond with bleachers, a large outdoor barbeque, picnic tables and children's playground equipment. The park serves as an active recreation ground for the local community.

3.22.6 Industrial and Commercial Uses

The Planning Area contains a number of small industrial and commercial uses.

A major producer of mushrooms is located at the corner of the Fifth Concession and Brock Road.

An enclosed storage operation is located south of the Fourth Concession about 4/5 km (½ mile) west of Brock Road.

A contracting company specializing in concrete work is north of the 4th Concession just to the west of Brock Road.

The Cider Mill is an historic component of the Cedar Grove area, located on the Tenth Line just north of the Little Rouge Creek.

A mill in Whitevale processes feed and seed and also sell fertilizers and other agricultural products. Although operating on electric power, the mill still retains an operable water wheel which can be turned from a raceway fed by Whitevale Pond.

The Pickering Works Yard has been built in the open space system. A 30" oil pipeline and the 96" York-Durham trunk sewer have recently been installed in the open space system.

Other enterprises include a furniture store, woodworking company, tool manufacturer, gas stations and a restaurant.

3.23 Existing Proposals

The following proposals, primarily of a regional nature, had been put forward by various interests prior to the formulation of the plan for the new community.

3.23.1 Sanitary Landfill Site

The 120-hectare (300-acre) Liverpool Road landfill site, owned and operated by Metro Toronto, and located in the open space system, began operation in 1975 and is expected to be filled to capacity some time after 1981. This date is indefinite due to increased use of the Brock Road North landfill sites.

Gravel is still being extracted from the site, but this will not delay the landfill operations.

3.23.2 Flood Control Reserves

The Metropolitan Toronto and Region Conservation Authority carried out studies⁶⁷ during the 1960's which supported the need for flood control dams on both the West Duffin and East Duffin Creek system.

The purpose was to prevent substantial flooding south of Seaton in Pickering-Riverside during heavy storm or spring runoffs.

Three possible dam sites were identified on West Duffin Creek (See Figure 3.23.2). Further studies are being carried out before any final decisions are made. Particular note should be made in this regard of the policy of the Ministry of the Environment to support guidelines for maintaining natural flow conditions in all streams.

However, subject to the findings of these additional studies, the presently preferred location of the dam is at site C. A dam at this location creates a lake/reservoir which, of the three alternatives, best responds to the recreational, environmental and aesthetic needs of the new community.

3.23.3 Sport Fisheries

The Ontario Ministry of Natural Resources is committed to regeneration of fish in Lake Ontario for use by both anglers and commercial fishermen. This would mean re-establishing species which will make full use of open shoreline and tributary waters. The long-term goal for the Duffin Creek catchment is the production of fish which swim upstream to breed, such as rainbow trout.

Both the east and west tributaries of the Duffin Creek are included in the Ministry plan for stream habitat enhancement. Costs will be greater for the West Duffin than for the East Duffin. However, given the maintenance of water quality suitable for trout (cold, constant-flowing spring-fed tributaries) it is anticipated the objectives can be met in both tributaries.

The Ministry of Natural Resources plan to remove and/or bypass, where possible, structures that prevent migratory fish from reaching suitable spawning and rearing grounds.

3.23.4 Flood Plain and Conservation Lands

The Metropolitan Toronto and Region Conservation Authority adopted a master plan for flood plain and conservation lands in 1962. The plan was submitted to the Province for approval in principle and has been the basis for MTRCA's flood plain and conservation land acquisition. In 1974, the authority adopted a report entitled A Master Plan For Flood plain and Conservation Land Acquisition Review and Extension. Major valleys of the Rouge River and Duffin Creek within the North Pickering area are included in the extension.

3.30 Roads

The existing road network within the Planning Area is based on two variations of the Ontario concession road grid (See Figure 3.30).

The Town of Pickering and Borough of Scarborough allow for 100 chains or 2,012 metres (6,600 ft.) between concession roads and 40 chains or 805 metres (2,640 ft.) between side roads, In the Town of Markham both concession roads and side roads are 100 chains apart.

The existing roads within the Planning Area are typical two lane rural facilities, either paved, surface treated, or stone and gravel, which serve and connect existing hamlets and villages such as Whitevale, Locust Hill, Green River, and Cherrywood. The grid is fairly continuous over the site except where interrupted by creek systems and their tributaries.

Taunton Road (Concession 4) is a surface-treated east-west two-lane road between Brock Road and West Duffin Creek. It crosses the West Duffin Valley at a low level at Clarkes Hollow, and changes direction to a north-south concession road.

Whitevale Road (Concession 5) is a locally important two-lane road and contains between Whitevale and Brock Road a number of historic and architecturally significant buildings. The road also crosses the West Duffin at a low level.

Other important rural roads include Altona Road (Regional Road 27) that crosses the site in a north-south direction west of Whitevale and Cherrywood and connects Highways 2 and 7. Town Line Road (Regional Road No. 30) forms the boundary between the regions of York and Durham, and serves adjacent agricultural operations. The Tenth Line in Markham is a two-lane gravel road which links the Cedar Grove area and the rest of the community within the site to Highway 7 and Steeles Avenue.

Figure 3.23.2
Alternative Dam Locations

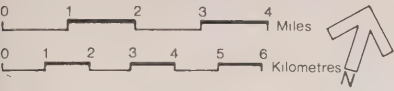
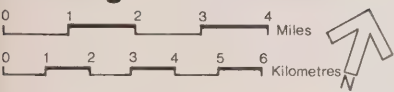
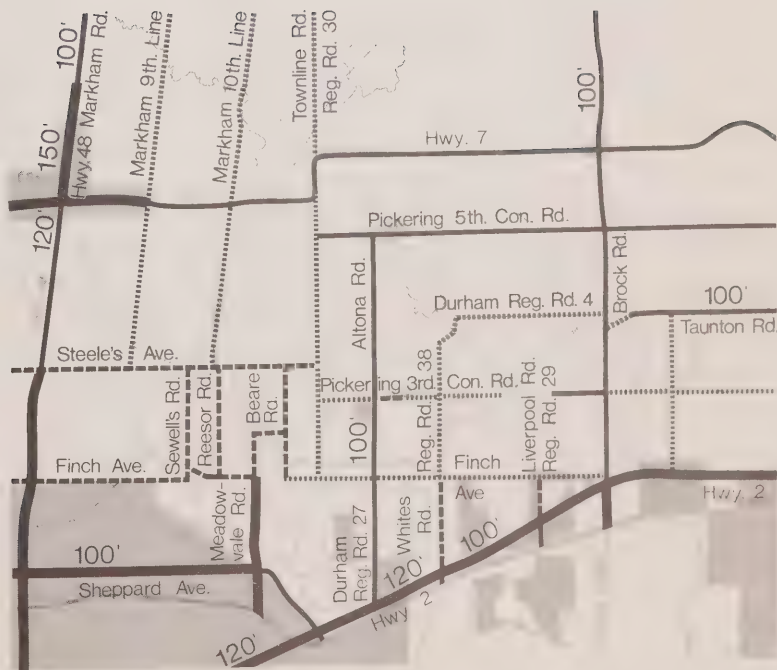


Figure 3.30
Existing Local Roads



Roads have a 66 foot right-of-way unless otherwise shown.

- 4 lane: Hot Mix Asphalt
- 2 lane: Hot Mix Asphalt
- 2 lane: Surface Treated
- 2 lane: Gravel



4. Development Base

Throughout the planning process a great deal of attention has been paid to the social, economic and commercial factors crucial to the planning of a new community.

These factors include the potential nature of the future resident population; the variety and extent of employment opportunities and how these will affect the community's population; the types, amount and distribution of housing which will be required. They also include the kind and size of shopping facilities.

The sections which follow outline some of the processes by which a number of basic planning decisions were made. These decisions, using goals, trends and requirements, have been instrumental in the formulation of the plan.

4.10 Population Trends

Without taking into account the possible effects of rising standards and expectations regarding housing, it would appear, based solely on demographic data, that Ontario will need in the next few years about 80,000 new dwellings annually,⁸⁵ dropping to about 60,000 by the end of the 1980's.

At the same time, the changes in demographic patterns and the reduction in growth capacity within Metropolitan Toronto in terms of both people and households will shift this growth to the surrounding regions. The steadily dropping birth rate must also be taken into account.

Statistics Canada report that the Canadian birth rate, which has been dropping since 1959, reached a new low of 15.0 per 1,000 population in 1979. The fertility rate of women in Ontario since 1971 has been below the level needed to sustain zero population growth.

This decline is all the more exaggerated because it follows a postwar baby boom. The combination of this postwar upsurge and the midsixties drop in birth rates has produced a population bulge which will affect social and economic circumstances as it moves through the implementation years of Seaton's development. The bulge will particularly affect housing and services as age groups requiring child care, elementary, secondary and post-secondary education, and employment shift in time through the evolving community.

The children of the post-war baby boom are beginning to establish families and households. To a degree they will be representative of residents in Seaton.

They may marry late in life, delay their first child and space the fewer children they will have at wider intervals. But because of the large numbers of these people who are now forming households, the rate of new family and non-family formations will preserve the growth phenomenon into the first half of the 1980's in the face of declining birth rates. The sheer size of the post-war generation will still produce in total a tremendous number of children despite a shrinking birth rate.

4.11 Historical Trends in Population Growth in the Toronto Region

Population growth within the Toronto Region* has shifted from Metro to the adjacent Regions of Durham, York, and Peel.

During 1966-71 Metro Toronto averaged an annual increase in population of 32,752, representing almost 55 per cent of the average annual growth within the Toronto Region. However, Metro's average annual population growth during 1971-1978 dropped to 7,951, only 17.5 per cent of the Toronto Region's average.

On the other hand, the surrounding Regions of Durham, York, and Peel experienced increases in their average annual population growth during the seventies and also increased their respective share of the Toronto Region's annual growth. While these Regions accounted for less than 50 per cent of the Toronto Region's population growth in 1966-71, they accounted for over 80 per cent of the growth from 1971-1978.

Table 4.11a shows that the average annual population growth within the Toronto Region declined during 1971-1978. In spite of this decline, however, the three adjacent Regions experienced significant increases in average annual population growth. In relative terms, Durham experienced the greatest increase. For example, Durham's growth doubled, while that of Peel increased by almost one-third, York increased by one-sixth and Metro declined by three-quarters.

*Metropolitan Toronto and the surrounding Regions of Peel, York and Durham.

TABLE 4.11a
AVERAGE ANNUAL POPULATION GROWTH WITHIN
THE TORONTO REGION: 1966-78

<u>Region</u>	<u>1966-1971</u>	<u>1971-1978</u>
Metro Toronto	32,752 (54.9%)	7,592 (17.5%)
Peel	17,511 (29.3%)	23,106 (50.8%)
Durham	3,541 (5.9%)	7,652 (16.8%)
York	5,922 (9.9%)	6,817 (14.9%)
TORONTO REGION	59,726 (100.0%)	45,527 (100.0%)

Source: 1966 Census and Planning Department of Regional
Municipalities

This uneven trend in population growth within the Toronto Region is clearly illustrated in Table 4.11b, which details population growth during 1971-78 for the boroughs of Metro and the area municipalities of the Regions.

In terms of average annual population growth from 1971 to 1978, the following areas accounted for most of the growth within the Toronto Region:

<u>Area</u>	<u>Av. Annual Pop. Growth</u> <u>1971-1978</u>
Mississauga	14,489
Scarborough	11,255
Brampton/Bramalea	7,571
North York	6,017
Markham	3,588
Oshawa	2,823
Etobicoke	1,699
Pickering	1,419

In terms of average annual percentage increases over the same period, the following areas experienced the greatest relative increases within the Toronto Region:

<u>Area</u>	<u>Av. Annual % Increase</u>
Brampton/Bramalea	10.7
Markham	9.8
Mississauga	8.4
Pickering	5.9
Ajax	4.9
Newmarket	4.7
Whitby	3.9
Scarborough	3.5

From the above, it is evident that the areas closer to Metropolitan Toronto are experiencing the greatest population pressures in the Toronto Region. Within Metropolitan Toronto, these pressures are felt mainly in the borough of Scarborough and the City of North York; however, these areas are experiencing relatively less pressures than those areas just outside Metropolitan Toronto.

Also evident is the bias of population growth to the west of Metropolitan Toronto. For example, Peel accounted for over 50 per cent of the Toronto Region's population growth. This growth in Peel was over three times the growth in Durham and York respectively.

A closer examination of population growth within the Toronto Region during the seventies has identified some new trends in population growth.

Table 4.11c, and Table 4.11d, indicate that Metro's growth occurred mainly in the early seventies. Also evident is that both Peel and York experienced higher growth in 1971-76 compared to 1976-78. Durham is the only Region which experienced higher population growth in the latter period.

<u>Area</u>	<u>Av. Annual Pop. Growth</u> <u>1971-1976</u>
Mississauga	15,671
Scarborough	11,120
North York	8,650
Brampton/Bramalea	6,738
Markham	3,930
Etobicoke	2,548
Oshawa	2,335
Newmarket	1,105

However, in terms of average annual percentage increases, the following areas experienced the greatest relative increases during 1971-76:

<u>Area</u>	<u>Av. Annual % Increase</u> <u>1971-1976</u>
Markham	10.7
Brampton/Bramalea	9.5
Mississauga	9.1
Newmarket	5.8
Pickering	3.7
Ajax	3.7
Scarborough	3.4
Whitby	3.2
Newcastle	3.1
Oshawa	2.5

Table 4.11d, which deals with 1976-78, shows that Metro's population actually declined by over 26,000 annually, while the population of Durham, York, and Peel increased annually by almost 39,000.

TABLE 4.11b

TORONTO REGION POPULATION GROWTH 1971-1978

	<u>1971</u>	<u>1978</u>	<u>Average Annual Increase</u>	<u>Average Annual % Increase</u>
Scarborough	325,331	404,119	11,225	3.1
North York	514,817	556,940	6,017	1.1
Etobicoke	280,722	292,613	1,699	0.6
East York	101,965	102,514	78	0.1
York	142,296	135,701	- 942	- 0.7
City of Toronto	680,319	609,225	- 10,156	- 1.5
<u>Metro Toronto</u>	<u>2,045,450</u>	<u>2,101,112</u>	<u>7,952</u>	<u>0.4</u>
% of Toronto Region	76.2	70.0	17.5	-
Mississauga	172,042	273,467	14,489	8.4
Brampton/Bramalea	70,838	123,837	7,571	10.7
<u>Peel Region</u>	<u>294,874</u>	<u>421,618</u>	<u>23,106</u>	<u>8.9</u>
% of Toronto Region	9.7	14.0	50.8	-
Pickering	24,021	33,956	1,419	5.9
Ajax	17,365	23,281	845	4.9
Whitby	23,830	30,302	925	3.9
Oshawa	93,988	113,753	2,923	3.0
Newcastle	26,811	32,006	742	2.8
<u>Durham Region</u>	<u>211,972</u>	<u>265,538</u>	<u>7,652</u>	<u>3.6</u>
% of Toronto Region	7.9	8.8	16.8	-
Markham	36,684	61,801	3,588	9.8
Newmarket	18,941	25,133	885	4.7
Richmond Hill	32,384	35,184	400	1.2
<u>York Region</u>	<u>165,940</u>	<u>213,657</u>	<u>6,817</u>	<u>4.1</u>
% of Toronto Region	6.2	7.1	15.0	-
TORONTO REGION	2,683,236	3,001,925	45,527	1.7

Source: Planning Departments of Regional Municipalities.

TABLE 4.11c

TORONTO REGION POPULATION GROWTH 1971-1976

	<u>1971</u>	<u>1976</u>	<u>Av. Annual Increase</u>
Scarborough	325,331	380,931	11,120
North York	514,817	558,067	8,650
Etobicoke	280,722	293,464	2,548
East York	101,965	104,102	427
York	142,296	139,612	- 537
City of Toronto	680,319	678,103	- 443
<u>Metro Toronto</u>	<u>2,045,450</u>	<u>2,154,279</u>	<u>21,766</u>
% of Toronto Region	76.2	72.3	37.0
Mississagua	172,042	250,399	15,671
Brampton/Bramalea	70,838	104,528	6,738
<u>Peel Region</u>	<u>259,874</u>	<u>377,013</u>	<u>23,428</u>
% of Toronto Region	9.7	12.7	39.9
Pickering	24,021	28,473	890
Ajax	17,365	20,605	648
Whitby	23,830	27,586	751
Oshawa	93,988	105,663	2,335
Newcastle	26,811	31,005	839
<u>Durham Region</u>	<u>211,972</u>	<u>243,839</u>	<u>6,373</u>
% of Toronto Region	7.9	8.2	10.8
Markham	36,684	56,333	3,930
Newmarket	18,941	24,468	1,105
Richmond Hill	32,384	34,362	396
<u>York Region</u>	<u>165,940</u>	<u>202,232</u>	<u>7,258</u>
% of Toronto Region	6.2	6.8	12.3
TORONTO REGION	2,683,236	2,977,363	58,825

Source: Planning Departments of Regional Municipalities.

TABLE 4.11d

TORONTO REGION POPULATION GROWTH 1976-1978

	1976	1978	Av. Annual Increase
Scarborough	380,931	404,119	11,594
North York	558,067	556,940	- 1,064
Etobicoke	293,464	292,613	- 426
East York	104,102	102,514	- 794
York	139,612	135,701	- 1,956
City of Toronto	678,103	609,225	-34,439
<u>Metro Toronto</u>	<u>2,154,279</u>	<u>2,101,112</u>	<u>-26,584</u>
% of Toronto Region	72.3	70.0	-
Mississauga	250,399	273,467	11,534
Brampton/Bramalea	105,528	123,837	9,655
<u>Peel Region</u>	<u>377,013</u>	<u>421,618</u>	<u>22,302</u>
% of Toronto Region	12.7	14.0	-
Pickering	28,473	33,956	2,742
Ajax	20,605	23,281	1,338
Whitby	27,586	30,302	1,358
Oshawa	105,663	113,752	4,045
Newcastle	31,005	32,006	500
<u>Durham Region</u>	<u>243,839</u>	<u>265,538</u>	<u>10,846</u>
% of Toronto Region	8.2	8.8	-
Markham	56,333	61,801	2,724
Newmarket	24,468	25,133	333
Richmond Hill	34,362	35,184	411
<u>York Region</u>	<u>202,232</u>	<u>213,657</u>	<u>6,712</u>
% of Toronto Region	6.8	7.1	-
TORONTO REGION	2,977,363	3,001,925	12,281

Source: Planning Departments of Regional Municipalities

Although Metro's population declined during 1976-78, Scarborough was the only area in Metro to experience growth in population. Also, Scarborough's growth in this period was similar to that during 1971-76.

Also evident from Table 4.11d is the relative decline in population growth within the Toronto Region. In spite of this decline, however, the Regions of Durham, York, and Peel continued to experience a significant population growth. It should be noted that the Durham Region and its area municipalities experienced their greatest increases in population during this period of overall relative decline in population growth.

In terms of annual population growth, the following areas accounted for most of the growth within the Toronto Region during 1976-78:

<u>Area</u>	<u>Av. Annual pop. Growth</u> <u>1976-1978</u>
Scarborough	11,594
Mississauga	11,534
Brampton/Bramalea	9,655
Oshawa	4,045
Pickering	2,742
Markham	2,734
Whitby	1,358
Ajax	1,338

In terms of average annual percentage increases, the following areas experienced the largest relative increases during 1976-78:

<u>Area</u>	<u>Av. Annual % Increase</u> <u>1976-1978</u>
Pickering	9.6
Brampton/Bramalea	9.2
Ajax	6.4
Whitby	4.9
Markham	4.8
Mississauga	4.6
Oshawa	3.8
Scarborough	3.0

On a Regional basis, average annual population growth is tabulated below:

Selected Growth by Region

<u>Region</u>	<u>1966-71</u>		<u>1971-76</u>		<u>1976-78</u>	
	<u>Actual</u>	<u>%</u>	<u>Actual</u>	<u>%</u>	<u>Actual</u>	<u>%</u>
Peel	17,511	64.9	23,428	63.2	22,302	57.4
Durham	3,541	13.1	6,373	17.2	10,846	27.9
York	5,922	22.0	7,258	19.6	5,713	14.7
<u>Total</u>	<u>26,974</u>	<u>100.0</u>	<u>37,059</u>	<u>100.0</u>	<u>38,861</u>	<u>100.0</u>

The above figures indicate that these Regions together experienced increased population growth even in 1976-78 when overall growth within the Toronto Region declined substantially and Metro's population actually declined.

It is also evident that Durham is significantly increasing its share of the population increase in the Regions adjacent to Metro. Durham is the only Region to show gains in its share of the population increase.

It should also be pointed out the Peel's growth in 1976-78 was only twice Durham's compared to being three times greater during 1971-76. The declining shares of York and Peel, compared to Durham's increasing share, would seem to suggest that Durham's increase may be at the expense of the other two Regions.

Within the Durham Region, the average annual percentage increases in population growth are greater for areas closer to Metro (see Tables 4.11b, c and d). Only Pickering and Ajax experienced significantly larger annual percentage increases than the average for the Region. It should be noted that during 1976-78 these two areas experienced their largest relative increases, in spite of the overall decline in population growth within the Toronto Region. During this period, the average annual percentage increases for Pickering and Ajax were 9.6 and 6.4 respectively compared to the Toronto Region's average of 0.8 per cent and the Durham Region's average of 4.4 per cent. (See Table 4.11d).

The larger percentage population increases in Pickering and Ajax seem to indicate that growth in the Toronto Region defied the 'leap-frog' notion. To the west and north of Metro, the same growth pattern has occurred as places closest to Metro (e.g. Mississauga, Brampton/Bramalea, and

Markham) experienced the largest percentage increases in population. (See Tables 4.11b, c and d).

The above detailed examination of population growth within the Toronto Region, especially during the last few years, has identified the following new trends:

- Population growth within the Toronto Region is declining.
- Metro's population is starting to decline.
- Scarborough is the only area within Metro experiencing growth in population.
- The Regions of Durham, York and Peel are accounting for all of the growth within the Toronto Region.
- The Regions, together, are still experiencing increases in population growth.
- The Regions of York and Peel are experiencing reduced shares of the population growth in the Toronto Region.
- Durham is beginning to receive a relatively larger share of the population increase within the Toronto Region.
- The eastern areas closest to Metro (e.g. Pickering and Ajax) are beginning to experience the largest relative increases in population growth.

4.12 Age Structure of Population

Because detailed recent age structure statistics are not available for Scarborough, Markham, Pickering and Ajax, it is assumed that the population of the larger municipalities will provide an adequate representation of the smaller areas.

As expected, the age-group distribution within the Toronto Region shows distinct differences between Metro and the adjacent Regions (see Table 4.12). Metro has a higher concentration in the older population groups than Durham, York and Peel.

TABLE 4.12

DISTRIBUTION OF AGE GROUPS
WITHIN THE TORONTO REGION: 1976

<u>Age Group</u>	<u>Metro Toronto</u>	<u>Pee1</u>	<u>Durham</u>	<u>York</u>
0 - 4	6	9	8	8
5 - 9	7	10	9	9
10 - 14	8	10	11	11
15 - 19	9	9	10	10
20 - 24	10	8	8	7
25 - 29	10	10	9	8
30 - 34	7	10	8	8
35 - 39	6	8	6	7
40 - 44	6	7	6	7
45 - 49	6	5	6	6
50 - 54	6	4	5	5
55 - 59	5	3	4	4
60 - 64	4	2	3	3
65 +	9	4	7	7

With respect to the age-groupings, in 1976, Metro had 30 per cent of its population under the age of 20, while Durham, York and Peel had 38 per cent each. Within the ages of 20-49, Metro had 45 per cent, compared to Durham, York and Peel with percentages of 43, 43 and 49 respectively. Finally, Metro had 24 per cent of its population in the over 50 age group, compared to 19, 19 and 13 for Durham, York and Peel, respectively.

From the above, it is expected that Markham, Pickering and Ajax are likely to have a relatively larger proportion of their population under 20, and a relatively smaller proportion over 50, than Scarborough⁹⁰.

4.13 Household Incomes

The 1974 CMHC Survey of Housing Units for the Toronto CMA, which covered almost 90 per cent of Metro, Durham, York and Peel, indicated the following average household income distribution:

<u>Income Ranges</u>	<u>Percentage</u>
Less than \$8,500	24
\$8,500 - \$18,000	43
Over \$18,000	33

The above is likely to be similar to Scarborough, Markham, Pickering and Ajax. Assuming that this is true and an annual income increase of 8 per cent during 1975-79, \$8,500 in 1974 would be equivalent to \$12,500 in 1979 and \$18,000 would be approximately \$26,500 in 1979.

4.14 Population Characteristics

The nature of the new community's population will be determined by a number of factors, including general population trends, and perhaps more importantly, aspects of the community that attract and accommodate different segments of the population.

Most particularly, the types, sizes and costs of housing; the amount and availability of different types of employment; the range of social programs that address the needs and desires of various groups; and the general design of the community itself will play a significant role in attracting families, groups and individuals in various numbers, income categories and age groups.

In order to achieve a population characterized by diversity, not unlike most other Ontario urban communities, the Plan attempts to match the different components of the community with the needs and desires of a range of people.

This matching process is based on the development of target population characteristics representing a somewhat "typical" profile for Central Ontario. They are drawn from an examination of the population, the region, and specific areas within and around Metro Toronto and the Seaton site.²³

These targets are not expected to ever be precisely realized, because of continual changes in needs, desires and population trends. However, the figures, and more detailed ones developed in the following sections, have affected decisions for the new community and in turn have been affected by those decisions. As the community develops, therefore, it will be necessary to continually monitor and re-evaluate their applicability.

However, the factors used in the following sections take into account the effects of a wide range of housing cost that can accommodate and attract both family and non-family households.

To a great extent, the major differences between new communities and older towns has resulted from the types and costs of housing, the availability of employment and the degree to which community programs and facilities attract a range of groups. For this reason, a great deal of attention has been paid to planning a community which will attract a mixed population and respond to changing needs, rather than to specific segments of the population.

4.20 Employment Projections

A major goal is to build a community in which people will choose to both live and work.

This goal was chosen for four main reasons. It obviates the need for long journeys to work and so offers people more free time and greater personal convenience; it moderates the increase in commuting pressures which might otherwise occur in the region; and it offers the choice of living in a community which is largely self-sufficient rather than a suburb which is not; and it provides the ratio of industrial/commercial to residential assessment which is required by the Town of Pickering.

The following objectives were established as being necessary to meet this goal:

- To balance the number of jobs with the size of the labour force living in the new community;
- To provide a wide range of job opportunities in office, professional and industrial employment.

4.21 Total Employment

Given that Seaton will have a population of at least 75,000 people, the estimated size of the labour force is 31,500 or more. This implies that out of every 100 residents, 42 would be wage or salary earners. As a first objective, the new community must, therefore, provide 31,500 jobs, or have an activity rate of 42 per cent.

Extensive analyses were made to determine the possibilities of securing this activity rate in Seaton. Urban systems analysis^{37,38,39} showed that from a regional viewpoint, a new community of 75,000 to 90,000 people could have an activity rate ranging from 30 to 45 per cent depending on the extent of Metro's dominance.

These various possible employment bases are as follows:

METRO DOMINANCE:	Highest	High	General
Manufacturing	14	19	24
Wholesale & Construction	5	4	5
Retail	3	4	5
Service	8	9	11
Total Activity Rate	30	36	45

The major question which arose was whether the new community would be dominated by Metropolitan Toronto or could it take advantage of its proximity to Metro?

To clarify the importance of taking economic advantage of such proximity, it is useful to distinguish between the life of a community and the vitality of its economic base.

A community is more likely to have a distinct identity and life of its own if a high proportion of its resident labour force works in the community. But this is impossible unless firms which provide employment can be attracted. In central-southern Ontario, the profit-making capacity of many firms is connected with their time-and-distance relationship to Metro Toronto.

Studies^{40,41,42,43,44} of the manufacturing sector indicated definite advantage could be taken of the new community's location. Seaton appears to fall within the greater Metro market area for available serviced industrial land. Given present trends, the total supply of industrial land likely to be available in the new community is approximately equal to two year's demand for the Toronto region.

Being located within the greater Metro industrial market area, Seaton has the potential to induce sufficient employment to produce an activity rate of 42 per cent. Recent industrial land absorption statistics indicate that the Durham Region is increasing its share of industrial land absorption within the Toronto market area. The most westerly municipality, Pickering, has accounted for most of the recent Regional increase and it appears that proximity to Metro and good access are major reasons for Pickering's success in industrial development.

In fact, Seaton's location is likely to be so attractive to secondary industry* that particular industrial groupings which it would be strategically desirable to have locate in the Durham Region have already been identified.

If the federal government eventually decides to build a new international airport adjacent to Seaton, this would only enhance the community's attractiveness to secondary industry.

4.22 Range of Employment

The second objective is to provide a wide range of job opportunities in office, professional and industrial employment. While balancing the number of jobs with the size of the resident labour force appears to be attainable, providing a wide range of job opportunities will be difficult. This is largely because of the traditional concentration of office, technical and professional employment (service employment) in downtown Toronto.

*Manufacturing, Wholesale, Construction.

4.22.1 Manufacturing Employment

A wide assortment of industry is likely to be drawn to Seaton in its mature state. These could be from such major industrial categories as: food and beverage; rubber and plastics; wood industries; furniture and fixtures; paper and allied printing and publishing; metal fabricating; machinery; transportation equipment; electrical products; non-metallic mineral products; chemical and chemical products; plus miscellaneous manufacturing.

Businesses⁴⁰ most likely to locate in the community include a high percentage of growth industries and those which form key sectors or potentially key sectors in the Ontario economy. This also includes firms which draw on numerous suppliers and therefore can have a stabilizing effect on the employment base. Other likelihoods are industries with similar patterns of locale. Or it can be those which are functionally related, the presence of which normally fosters economic development, such as metal working and machine building. Good strategic industrial planning would, therefore, attempt to induce simultaneously such industrial groupings in the interests of both the new community and the Durham Region.

TABLE 4.22.1
MATURE STATE EMPLOYMENT PROJECTIONS

<u>Type of Employment</u>	<u>Activity Rate</u>	<u>Approx. Jobs</u>
Manufacturing	.24	18,000
Wholesale & Construction	.04	3,000
Retail	.05	3,750
Services	.09	6,750
TOTAL	.42	31,500

Location requirements of the most probable industries have been checked to see that they can be accommodated comfortably within Seaton and to make sure they could meet environmental requirements.

4.22.2 Service Employment

Available data did not permit the detailing of the kinds of service industries likely to be attracted to the new community in the same way as

the most probable industries were identified. However, the service sectors in most of the towns and cities in the Central Ontario Lakeshore Urban Complex (COLUC) were analyzed to estimate how this portion of the employment sector for the new community might be made up. This is provided in Table 4.22.2.

The component parts of this table come to a little more than nine per cent, but this figure has been retained as a conservative one for service employment. This is because some urban centres fairly close to Metro appear to have a rather small service sector. The reason may lie in the high mobility of people who live in COLUC. Multi-purpose trips for shopping, entertainment and other personal reasons appear commonplace.

TABLE 4.22.2

SERVICE EMPLOYMENT

Category	Activity Rate (%)
Finance Industries	0.5
Insurance Agencies and Real Estate Industries	0.3
Education	2.4
Health and Welfare Services	2.8
Amusement Recreation and Religion	0.4
Services to Business Management	0.5
Personal Services	0.7
Accommodation	0.9
Miscellaneous	0.4
Local Administration	<u>0.6</u>
TOTAL	9.5

4.22.3 Occupation Profile

A profile for different types of occupations was prepared for the expected mature state employment projection utilizing 1971 Census data for Ontario and Peel Counties (See Table 4.22.3).

TABLE 4.22.3

OCCUPATION COMPARISON FOR SELECTED CATEGORIES
BY PERCENTAGE OF TOTAL EMPLOYMENT

<u>Occupation</u>	<u>Percent breakdown</u>
Manufacturing	30.4
Construction	6.2
Wholesaling & Distributing	12.3
Management & Administration	4.5
Professional & Technical	9.1
Clerical	17.5
Sales	10.7
Service	6.6
Miscellaneous	<u>2.7</u>
Total	100.0

4.22.4 Individual Income Profile

For the same geographical areas from which the occupation profiles were derived, the 1971 census income data was used and adjusted to 1979 levels to estimate income profiles expected in Seaton. (See Table 4.22.4).

TABLE 4.22.4

COMPARISON OF EMPLOYMENT INCOME OF INDIVIDUALS

<u>Annual Income*</u> <u>(1979 Dollars)</u>	<u>Proportion of Individuals</u> <u>per Income Class (%)</u>
Less than \$6,000	25
\$6,000-12,000	27
\$12,000-21,000	31
\$21,000-30,000	12
More than \$30,000	<u>5</u>
Total	100%

In 1979 the basic wage in Ontario was \$2.90 per hour. Assuming 40 hours a week for 50 weeks as full-time employment, the minimum amount which could have been earned in Ontario in 1979 by a person fully employed at the basic wage was \$5,800. Therefore, the majority of earnings of less than \$6,000 can be regarded as part-time employment.

This would include summer earnings by students and part-time work by second income earners in a family as well as people laid off or unemployed for part of the year.

4.23 Industrial Land Requirements

To accommodate the 21,000 jobs in secondary employment, 525 to 700 hectares (1,300 - 1,730 acres) of industrial land will be needed, depending upon the density of workers in the final mix of industries. The community will have approximately 723 hectares (1,786 acres) available for industrial use, of which 400 hectares (1,000 acres) are completely free of any development constraints upon development. The remaining 325 hectares (790 acres) possess some minor physical constraints to development which can be overcome by good design.

4.30 Housing Market

4.31 Housing Requirements in Ontario to 2001

In order to identify the strength of the housing market in the Toronto Region as a whole, and more particularly in the eastern sector, the following aspects have been identified:

- Over-all projections for housing requirements in Ontario in the short, medium and long-term, and for the Central Ontario Region.
- The current housing situation in the eastern portion of the Toronto Region, including housing starts and the existing and anticipated supply of housing units in this area.
- An analysis of the projected balance between expected demand and anticipated supply in the eastern portion of the Toronto Region.

A long term study in Ontario housing requirements was completed in early 1977.⁸³ Some conclusions of this study are as follows:

- Growth in Ontario housing requirements has peaked but should remain at high levels until the mid-1980's. New housing requirements should remain high, averaging 88,000 units annually to 1981, declining slightly to about 84,000 units annually during the 1981-86 period.

*Adjusted from 1971 distribution by experienced increases in the CPI 1971-1978 and estimated increases in 1979.

- After 1986 all areas in Ontario should experience a substantial decline in new housing requirements. During 1986-91 new housing requirements should decline substantially to about 64,000 units annually. The low point of these projections should occur during 1991-96 at 54,000 units annually followed by an upturn to 60,000 units annually during 1996-2001.
- Single detached units and ownership should constitute an increasing share of Ontario's new housing. Singles are expected to account for 54 per cent of housing additions during 1978-81, and to increase to 73 per cent during 1991-96. Correspondingly, ownership of new housing units should increase from 54 per cent in 1976-81 to 76 per cent in 1991-96.
- Central Ontario is the only area expected to increase its share of future housing growth. Of the Economic Regions, only Central Ontario should consistently have a housing growth rate higher than that of the Province. As a result, it will be the only Economic Region that will increase its proportion of future housing growth in Ontario. It's share is expected to rise from 64 per cent in 1976-81, to 70 per cent in 1996-2001.

A more recent short term study of Ontario housing requirements was completed in late 1978.⁸⁵ In this study, average annual housing requirements were projected at 77,700 units during the 1976-81 period. This projection is over 10,000 units less than the projection in the previous study. It should, however, be noted that this study focused entirely on the province-wide housing requirements, and therefore did not deal specifically with the housing market relevant to Seaton.

It is important to note that within the Toronto Region, except for Metro Toronto, future population and housing projections have generally been revised upward. These revisions have resulted from the recent growth especially in the Regions adjacent to Metro.

Durham's most recent population forecast was completed in August 1978.⁹¹ The "most likely" population forecast for 1986 was over 345,000 compared to approximately 334,000 in the previous forecast.⁹⁶ This revised projection was based on the momentum of growth established by recent population increases.

It should be noted that the Planning Departments in both York and Peel have expressed concerns that their existing population forecasts are

relatively low in light of most recent growth. These two Regions are presently reviewing their existing forecasts and it is expected that the new forecasts will be higher as was the case in the Durham Region's recently revised projections.

In light of the above, the critical issue within the Toronto Region is not the expected overall decline in population growth in the future. Within the Toronto Region, the shrinking of household size is counteracting the negative impact of declining population growth, imparting a measure of stability to the Toronto Region housing market.

The critical issue is the accommodation of future housing requirements within the Regions of Durham, York and Peel. As was demonstrated earlier, these Regions experienced increases in population growth during 1976-78 when the overall growth within the Toronto Region declined substantially and Metro's population actually declined.

These increases in population growth and the upward revisions in population forecasts for the Regions adjacent to Metro suggest the need for Seaton in the near future.

4.32 Trends in Housing Starts in the Toronto Region

4.32.1 Historical Trends

Residential activity is expected to reflect the trends in population growth identified above. It should be noted, however, that residential demand and population growth do not have a corresponding one-to-one relationship. For example, during 1971-76, Metro Toronto experienced slow population growth but residential demand within Metro was relatively high.* This was mainly due to the large increases in household formations. During 1971-76, about 75 per cent of the residential demand within Metro was related to household formation.*

Housing starts in the Toronto Region for 1971-78 are shown in Table 4.32.1. It should be noted that this Table shows only the starts for the larger urban areas of the respective Regions. This is because CMHC statistics on housing cover only the larger urban areas in Regional Municipalities. However, due to the limited amount of housing activity

*A Study of the Housing Market in the Toronto Area, The Toronto Home Builders Association, Robert L. Siegel & Associates, Inc., December 1977.

TABLE 4.32.1
HOUSING STARTS IN TORONTO REGION 1971 - 78

	1971	1972	1973	1974	1975	1976	1977	1978
Scarborough	6,785	6,140	5,554	4,771	6,423	5,498	5,989	5,978
METRO TORONTO	35,209	38,695	37,697	29,580	26,457	26,555	27,918	26,051
Pickering	58	5	1	473	996	1,620	777	249
Ajax	423	199	246	416	785	374	451	517
Whitby	260	525	557	264	656	373	984	939
Oshawa	1,258	1,295	1,251	1,325	1,720	3,127	1,688	1,244
EAST SECTOR	1,999	2,024	2,055	2,478	4,157	5,494	3,900	2,949
Markham	284	1,890	1,544	785	1,389	771	734	1,832
Richmond Hill	515	443	526	273	601	229	383	301
Newmarket	-	418	768	225	255	128	178	708
NORTH SECTOR	799	2,751	2,838	1,283	2,245	1,128	1,295	2,841
Mississauga	4,640	7,148	8,625	5,058	3,884	5,997	5,210	4,021
Brampton/Bramalea	-	1,028	1,552	3,336	2,377	3,620	4,154	3,062
WEST SECTOR	4,640	8,230	10,177	8,394	6,261	9,617	9,364	7,083
TOTAL	42,647	51,700	52,767	41,735	39,120	42,794	42,477	38,924

Source: CMHC

in the smaller areas of each Region, Table 4.321 provides a reasonably accurate account of the distribution of housing activity within the Toronto Region during 1971-78.

Although housing starts respond to economic conditions, they are useful for showing geographic trends. For example, during 1971-73 Metro accounted for 76 per cent of the Toronto Region's housing starts, but in 1976-78, Metro's share was reduced to about 65 per cent. Conversely, the Regions of Durham, York and Peel (i.e. the East Sector, North Sector and West Sector, according to Table 4.32.1) accounted for only 24 per cent in 1971-73, but their share increased to 35 per cent in 1976-78.

Within Metro, the largest housing activity relevant to the development of Seaton is being concentrated in Scarborough. During 1971-73, Scarborough accounted for almost 17 per cent of Metro's total housing starts, while in 1976-78, Scarborough's share increased to about 22 per cent. Most recent CMHC statistics, which cover January to July 1979, show that housing starts in Scarborough accounted for almost 38 per cent of Metro's total. This reflects the fact that Scarborough has almost all of the vacant residential lands (about 90 per cent) within Metro.⁸⁷

It should be noted that although the City of Toronto accounted for almost 37 per cent of Metro's starts during January to July 1979, almost 75 per cent of the starts within the City were apartment units. This heavy concentration in apartment units clearly indicates the specialized nature of the housing market within the City of Toronto.

Within the Durham Region, recent municipal housing policies have de-emphasized high density development and as such residential activity in the City of Toronto is unlikely to have any major impact on the housing development in Durham. Housing activity in Scarborough, where the emphasis is also low density, is, however, expected to have the major impact on development in Durham.

Also demonstrated in Table 4.32.1, is the predominance of the west, discussed earlier. Housing starts in Mississauga and Brampton/Bramalea have consistently outpaced Pickering, Ajax, Whitby and Oshawa by 3:1 during 1971-78.

The dominance of housing development in the west is, however, slowly reducing. Of the total housing starts within the Regions of Durham,

York and Peel, during 1971-73, Durham accounted for 17 per cent, York 18 per cent, and Peel 65 per cent. During 1976-78, these proportions were 28 per cent, 12 per cent and 60 per cent for Durham, York and Peel respectively. Thus, while Peel's housing starts were almost four times that of Durham in 1971-73, they were only twice Durham's in 1976-78.

From the above, an overall increase in Durham's housing is evident. Housing activity within the Durham Region is also following a western bias. During 1971-73, the western areas of Pickering and Ajax accounted for only 15 per cent of Durham's total housing starts, but in 1976-78, they accounted for 32 per cent of Durham's total. (See Table 4.32.1).

Furthermore, Pickering, the most westerly municipality in the Durham Region, experienced the greatest relative increases in housing activity within Durham during the seventies. For example, of the total starts in Durham during 1971-73, Pickering accounted for only 1 per cent, but during 1976-78, Pickering accounted for over 20 per cent of Durham's total housing starts. It should be noted, however, that during 1977-78 starts in Pickering have declined significantly because of restrictions on servicing capacity.

Also evident from this table is the relative decline in housing starts within the Toronto Region. During 1971-73, annual housing starts in the Toronto Region averaged over 49,000, but in 1976-78, housing starts averaged approximately 41,000 annually. This decline in starts appears to be continuing in 1979.

York is the only Region within the Toronto Region to experience an increase in housing starts during 1979. Housing starts in York for January to July 1979 are up over 1978 levels by 49 per cent.

With respect to housing starts within the Toronto Region, the following trends have been noted:

- Housing starts within the Toronto Region are declining. This decline is not as significant as the decline in population growth.
- Metro's share of the Toronto Region's housing starts is also declining.
- Housing starts in Scarborough and the City of Toronto account for over 75 per cent of Metro's total.

- Housing starts in the City of Toronto are predominantly in apartment units.
- The Regions of Durham, York and Peel are increasing their share of the Toronto Region's housing starts.
- Housing starts in these Regions, with the exception of York, are continuing to decline.
- Durham is beginning to receive a relatively larger share of the housing starts in the three Regions surrounding Metro.
- The areas closest to Metro account for a larger proportion of Durham's housing starts.
- Pickering has experienced the greatest increase in housing activity within Durham during the mid-seventies.

As expected, the above trends generally reflect the trends in population growth discussed earlier.

4.32.2 Existing Supply

Based on the trends in population growth and housing starts, and the location of Seaton, it is evident that residential development in the community will form part of the housing market area encompassing Pickering, Ajax, Markham and Scarborough. This section of the report deals, therefore, mainly with relevant housing information in these four areas.

Inventory of Unbuilt Units

This inventory provides detailed information related to Draft and Registered Plans. It should, however, be noted that the information provided in this section is constrained somewhat by the availability of relevant data.

Scarborough

As of September 1978, there were 19,240 dwelling units zoned, but not developed.⁹⁰ The breakdown of these units are shown below:

<u>Type</u>	<u>Number of Units</u>	<u>Percentage</u>
Detached	4,756	24.7
Semi-Detached	940	5.0
Street Town House	876	4.5
Multiple-Family	2,374	12.3
Terrace Apartments	485	2.5
Apartments	<u>9,089</u>	<u>51.0</u>
TOTAL	<u>19,240</u>	<u>100.0</u>

Of the above 19,240 units, Scarborough Planning Board statistics indicate that at the end of the fourth quarter of 1978, 9,181 units were on processed plans but had not yet been built upon. Although this total could be changed by re-zoning, it is unlikely to change significantly because of the limited amount of unzoned vacant land in Scarborough.

The interim housing targets adopted by Scarborough Council provide for 6,000 dwelling units per year. The presently zoned undeveloped lands provide a stock of 3 years supply for future development.

This is "in line" with the trend of the last 5 years detailed below:

TABLE 4.32.2a
HOUSING STARTS - SCARBOROUGH
1974 - August 1979

<u>Year</u>	<u>Housing Type</u>				
	<u>Single Family</u>	<u>Semi- detached</u>	<u>Multiple</u>	<u>Apartment</u>	<u>Total</u>
1974	698	418	1,095	2,560	4,771
1975	1,484	1,012	1,269	2,658	6,423
1976	541	839	1,376	2,742	5,498
1977	787	982	1,334	2,886	5,989
1978	1,352	724	1,306	2,596	5,978
1979	<u>928</u>	<u>390</u>	<u>575</u>	<u>0</u>	<u>1,794</u>
Total	5,691	4,365	6,955	13,442	30,453
%	18.7	14.3	22.8	44.2	100

Markham

As of August 1, 1979, 3,066 approved and registered dwelling units were still to be constructed.⁸⁹ The breakdown of these units are as follows:

<u>Type</u>	<u>Number of Units</u>	<u>Percentage</u>
Detached	1,309	42.7
Semi-Detached	1,380	45.0
Town Houses	335	10.9
Apartments	<u>42</u>	<u>1.4</u>
TOTAL	<u>3,066</u>	<u>100.0</u>

Markham Planning Department has recently recommended to Council the approval of an additional 3,604 dwelling units as follows.

<u>Type</u>	<u>Number of Units</u>	<u>Percentage</u>
Detached	1,714	47.6
Semi-Detached	1,170	32.5
Town Houses	236	6.5
Apartments	<u>484</u>	<u>13.4</u>
TOTAL	<u>3,604</u>	<u>100.0</u>

It should be noted that of these 3,604 units recommended for approval in August 1979, 2,023, or 56 per cent are dependent on the timing of completion of the York/Durham Sewer system.

Pickering

Pickering Planning Department's current estimation of unbuilt housing units from Registered Plans is approximately 200 units. Most of these are expected to be under construction during 1979.

Pickering's housing development activity during the last few years are shown below.⁹⁷

<u>Year</u>	<u># of Units in Applications</u>	<u># of Units in Draft Approval</u>	<u># of Units in Reg. Approval</u>	<u># of Housing Starts</u>
1976	938	571	464	1,620
1977	579	763	744	777
1978	1,473	379	201	249
1979	703	65	90	80

The 'survival' rate between units in applications and units in draft approvals above are relatively lower than the rate for the Durham Region used in a recent housing study⁹⁸ and is thus indicative of constraints in the supply of lots.

Also, the close correspondence, especially during 1977-79, between units in registered approvals and housing starts seem to indicate a shorter lag factor than the one year used in the above study.

It should be noted that the absorption period for building permits in Pickering, and also for Ajax, is shorter than that for the Region as a whole, indicating a lag factor between registered approval and housing starts in Pickering closer to six months than one year.

Ajax

Ajax Planning Department's current estimation of unbuilt housing units from Registered Plans is approximately 100 units. These are all singles and are expected to be all under construction by the end of 1979.

Ajax's housing development activity during the last few years is shown below:

	# of Units in <u>Applications</u>	# of Units in <u>Draft Approval</u>	# of Units in <u>Reg. Approval</u>	# of Housing <u>Starts</u>
Year				
1976	4,110	851	905	374
1977	225	212	318	451
1978	1,686	16	561	517
1979	3,845	16	187	74

The 'survival' rate between units in applications and draft approvals is extraordinarily low. This may be related to the timing of completion and approval of the Durham Official Plan and Ajax District Plan and to sewage capacity constraint. The relatively large number of applications in 1979 would be related to the re-submission of 1976 applications and to the expected operation of the York/Durham Sewer System in 1980.

Inventory of New Completed and Unoccupied Units

As of July 1979, there appear to be about 1,700 newly completed and unoccupied units in Scarborough, Markham, Pickering and Ajax. (Table 4.32.2b). Scarborough accounted for 83.5 per cent, with Markham 7.8 per cent, Ajax 6.8 per cent and Pickering 1.8 per cent.

TABLE 4.33.1
NEWLY COMPLETED AND UNOCCUPIED UNITS: JULY 1979

Area	Singles	Semi-	Row Housing		Owned	Apartment		Grand Total
			Condominium	Rental		Condominium	Rental	
Scarborough	43	13	221	-	177	575	390	1,419
Markham	14	-	40	21	13	-	1	134
Pickering	25	5	-	-	-	-	-	31
Ajax	73	-	-	-	-	-	42	115
TOTAL	155	18	301	21	190	575	433	1,699

Source: CMHC, Toronto Office, August 22, 1979.

This total for the four areas consists of:

Condominium Apartment	-	33.8%
Rental Apartment	-	25.5%
Condominium Row Housing	-	17.7%
Owned Row Housing	-	11.2%
Singles	-	9.4%
Rental Row Housing	-	1.2%
Semi-Detached	-	1.1%

Current Supply Summary - Mid-1979

The following Table details the inventory of unoccupied housing and the number of new lots that are expected to be available in the housing market area in the east of the Toronto Region.

TABLE 4.32.2c

CURRENT SUPPLY SUMMARY - MID-1979

	Units Built ¹⁾ <u>and Unoccupied</u>	#Units in <u>Approved Plans</u>	<u>Total</u>
Markham	134	3,066 ²⁾	3,200
Scarborough	1,419	13,240 ³⁾	14,659
Pickering	31	200 ⁴⁾	231
Ajax	<u>115</u>	<u>100⁴⁾</u>	<u>215</u>
TOTAL	1,699	16,606	18,305

1) August 1979

2) August 1979

3) September 1979 estimate based on annual absorption of 6,000

4) September 1979

4.33 Supply/Demand Balance in the Eastern Portion of the Toronto Region

It is clear that, based on current patterns of residential development, Seaton will form part of the housing market in Scarborough, Markham, Pickering and Ajax. This section, therefore, deals with the future housing demand in these areas.

Scarborough

Based on historical housing demand, Scarborough's council has adopted an interim housing target of 6,000 units per year. In spite of the relative general slowdown in the housing market, Scarborough Planning Department maintains that this annual target is realistic because of the decline in newly completed and unoccupied units in the Borough during the last few years.

Although there appear to be some recent anomalies in the general housing start trend, January-July 1979 figures indicate a decrease in newly completed and unoccupied units for all unit types except rental apartments. It is, therefore, likely that future housing demand in Scarborough will average 6,000 units annually.

Markham

There is no housing target set by Council for Markham, as in Scarborough. Growth in occupied housing units during 1973-79, Markham averaged 1200 units annually. During 1977-79, when Markham experienced its largest housing absorption, the average annual increase was approximately 1500 units.

It is, therefore, reasonable to assume that the annual demand for housing in Markham will average around 1,500 units.

Pickering

Based on recently revised population household size projections, the Durham Housing Demand Study (June 1979), forecasted housing demand for 1983 and 1993. This study projected an average annual demand for approximately 1,000 units for Pickering to 1993.

Ajax

The Durham Housing Demand Study also projected an average annual demand for Ajax of almost 500 units up to 1993.

Summary of Housing Demand in the Seaton Market Area

Table 4.33a summarizes the demand in the Seaton Market Area.

TABLE 4.33a

PROJECTED ANNUAL DEMAND FOR HOUSING
IN THE SEATON MARKET AREA

Scarborough	6,000
Markham	1,500
Pickering	1,000
Ajax	<u>500</u>
	9,000

Based on the expected housing activity in Scarborough, the available inventory of undeveloped residential lots could be totally absorbed as early as 1981. (See Table 4.32.2b).

Markham has approximately 3,000 approved and registered dwelling units still to be constructed. These units provide 2 years supply of future demand. In addition there is another 2 years supply of lots recommended to Council for approval. (See Table 4.32.2b).

There is, however, no restriction on available residential land and Markham has land to provide housing until the turn of the century.

Pickering has currently about 200 unbuilt units from Registered Plans. The recent Regional housing demand study has projected a potential annual supply of approximately 1,100 units to 1993. Although this projected supply exceeds slightly the projected demand, the housing study identified shortfalls in particular housing types. By 1983, there is expected to be a shortfall in single detached of almost 700 units. By 1993,

the expected shortfall in single detached units was projected to increase to over 2,000 units.

Ajax appears to have about 100 unbuilt units from Registered Plans. As noted earlier, these units are likely to be under construction by the end of 1979. The Regional housing demand study projected a potential supply of almost 400 units annually to 1983, and thereafter to about 600 units during 1984-93.

Since average annual demand to 1993 is estimated at 500 units, Ajax is expected to experience an overall shortfall of approximately 100 units annually. When the shortfall analysis was done on the basis of unit types, the Regional housing demand study identified a shortfall of approximately 800 single detached and about 400 multiple units by 1983. By 1993, the shortfall in single detached units was projected to increase to over 1200.

4.34 The Role of Seaton in the Housing Market

In light of expected trends in population growth, housing activity, the inventory of unbuilt units and, in particular, the expected housing supply/demand situation in Scarborough, Markham, Pickering and Ajax, it is evident that Seaton has a role to play in the future housing activity to the east of Metropolitan Toronto.

The expected total absorption of the available undeveloped residential lots in Scarborough by 1981 will certainly result in significant portions of the unsatisfied housing demand in Scarborough overspilling to the areas east and north of Metro, especially Pickering, Ajax and Markham. After 1981, when most of Scarborough's residential land is used up, these areas are expected to experience severe housing demand pressures, especially in light of the fact that the anticipated supply of lots in Markham, Pickering and Ajax is currently in reasonable balance excluding this new source of demand.

It appears, therefore, that there will be an annual requirement of about 6,000 units in the eastern market area which cannot be satisfied after 1981 given the current and anticipated sources of supply identified in the Durham Housing Policy.

As further detailed in Section 4.32.2, about 45% or 2,700 of the annual number of units built in Scarborough are apartments. If it is assumed that after 1981 all the demand for these units is satisfied elsewhere in

Metro Toronto, conservatively 3,300 additional housing units will be available for Markham, Pickering and Ajax.

The distribution of this additional annual demand will depend on many factors, including supply and marketing techniques. However, on the basis of the distribution of housing starts since 1974 (Markham 48%, Pickering 32% and Ajax 20%), (See Table 4.34) the annual demand after 1981 can be projected as follows:

TABLE 4.34
ANNUAL ANTICIPATED DEMAND AFTER 1981

	Trend Demand	Additional* Demand	Total Demand
Markham	1,500	1,600	3,100
Pickering	1,000	1,000	2,000
Ajax	500	700	1,200
TOTAL	3,000	3,300	6,300

With respect to the above increases in demand, it should be noted that currently, Markham can bring on stream approximately 1,500 units annually. Without improvement in Markham's housing activity, there is likely to be a shortfall of about 1,600 units.

It was noted earlier that both Pickering and Ajax are likely to experience shortfalls in meeting the particular housing demand type by 1983. In light of this, it is unlikely that these two areas can accommodate the projected overspill from Scarborough given the anticipated supply as identified in the Regional Housing Study.

The 1982 start for Seaton will help accommodate the overspill from Scarborough and, at the same time, be advantageous to the Durham Region.

Without Seaton, Scarborough's overspill will likely be channelled to the northern and western areas adjacent to Metro. Further additional growth in these areas will place the Durham Region at a significant disadvantage in competing for future economic growth with these areas to the north and west.

Although Seaton will only supply from 250 housing units in 1982 to a high of 1,200 units in 1995, it will provide a necessary counter-balance to the large new developments in the northern and western areas adjacent to Metro. At the same time, Seaton would also be instrumental in the achievement of the provincial 'GO EAST' policy.

*based on the current distribution of housing starts

4.35 Recommended Housing Mix

It was decided to allow for a housing mix very similar to that which has been provided as a reaction to market forces in Markham, Pickering and Ajax. The following table, 4.35, details starts in each of these communities from January 1974 to August 1979.

Table 4.35
Housing Starts by Type *

Year	Markham				Pickering				Ajax				TOTAL			
	SF	SD	Mult	Apt	SF	SD	Mult	Apt	SF	SD	Mult	Apt	SF	SD	Mult	Apt
1974	197	0	226	362	94	66	134	179	194	0	77	145	485	66	437	686
1975	192	12	707	478	134	443	383	36	153	0	169	463	479	555	1259	977
1976	271	48	262	190	513	327	744	36	3	0	307	64	787	375	1313	290
1977	280	244	179	31	315	254	176	32	102	0	116	233	697	498	471	296
1978	913	576	340	3	156	42	51	0	281	0	24	212	1350	618	415	215
1979	369	314	175	0	82	19	0	0	75	0	0	0	526	333	175	0
TOTAL	2222	1194	1889	1064	1294	1151	1488	283	808	0	693	1117	4324	2345	4070	2464
%	34.8	18.7	29.6	16.9	30.7	27.3	35.3	6.7	30.9	0	26.5	42.6	32.7	17.8	30.8	18.7

*Source: CMHC Statistics. 1979 figures January to August only

Since the numbers in the above Table 4.35 represent a reasonably long trend, abnormal market situations such as the high demand for apartment units in the mid-seventies and the low demand in the late seventies because of rent controls, etc. would be averaged out.

Based on the above, the following density distribution would seem a reasonable reaction to the anticipated demand in this area.

Low Density	50%
Medium Density	35%
High Density	15%

4.40 Housing Policy and Programs

A guiding principle behind the housing recommendations has been that the new community should accommodate people with a wide range of social values, preferences, lifestyles, individual and family circumstances, and economic resources.

To do this, the housing program must be carefully structured to ensure that its social qualities, economic availability, and physical variety will match all these factors.

Achieving this goal will require diversity of residential environments, dwelling types, tenure conditions and housing costs within the community. The affluent, the not-so-affluent, the poor, the individual, the family, the group, the young, the middle-aged, the elderly, the tenant, the owner, the co-op owner, the single house in its own garden, the apartment suite, the roomer, the dwelling at the ground level and the dwelling above ground level, dwellings in quietly clustered groups and dwellings integral with the bustle of the sub-central or community areas - all these have a place that a community of 75,000 to 90,000 inhabitants should offer.

A major factor is the apparent gap between what housing costs and what people can afford to pay. If the new community is to house a broad cross-section of people, many aspects of the housing program are clearly more dependent on general provincial and federal government policies rather than internal decisions of the developer of the community.

In general, large families with children can be best accommodated in low and middle-density areas in ground-related units with an emphasis on ownership. These should also be within reasonable walking distance of schools, local facilities, day care programs, open space and public transit.

Households of two people can be best accommodated in middle and upper-density areas in moderately sized units with more emphasis on access to community centres and the sub-central area.

Singles can best be accommodated in higher density areas in smaller units with emphasis on rental arrangements and ready access to community centres and the sub-central area.

In a sense, these are ideal and simplistic criteria. They do not recognize the full diversity of the housing stock and rental/lease ownership patterns. Furthermore, emphasis should be placed upon achieving a compatible mixture of families, couples, singles and groups within the community. Nevertheless, they do serve as guidelines to ensure that a sufficiently broad range of housing will be provided.

The types of housing generally related to a community centre should be mixed to allow residents to move over time to suit their changing needs without their having to break personal associations and ties. Allowances should be made for such arrangements as single-family housing with flats for families with grandparents, ground-related multiples with apartments on upper floors to permit some mixing of different life-styles, and ground-related units within higher density buildings for those families with children who may wish to live separately but nearby.

4.41 Housing Types and Distribution

To fully relate households to housing, the requirements of the three basic sizes of households were reviewed. (See Table 4.41).

While a reasonable mix across the community is desirable, some small areas of exclusively large, private residential properties should be provided to attract upper income management, professional and executive personnel.

4.42 Housing Densities

Taking into account the projected households and their housing requirements, an inventory of required dwelling units was constructed within three density ranges:

- Lower density 20 d.u./hectare (8 d.u./acre net) single detached and semi-detached housing;
- Medium density 37 d.u./hectare (15 d.u./acre net) ground-related multiple row and terrace housing;
- High density 100 d.u./hectare (40 d.u./acre net) apartments and flats.

To satisfy the foregoing projections, particularly the main goal of accommodating a diverse population in the new community, a balance of all three density ranges were incorporated in the Plan. (See Table 4.43). The resulting overall average density is 28 dwellings per hectare (11 per acre) housing land only. This represents a population density of 83 people per net housing hectare (33 persons per acre).

There are reasons for increasing this density. Higher densities utilize land more effectively which in an urban context is an increasingly scarce resource. Since the community must pay its way, the type and intensity of overall development should reflect the value of the land.

TABLE 4.41
HOUSING TYPES AND HOUSEHOLD TYPE

Housing Characteristics		Household Size	
		(number of persons)	
		one	two
		three or more	
Type	<ul style="list-style-type: none"> - rooms, flats - apartments 	<ul style="list-style-type: none"> - apartments, ground related units - some detached, semi-detached and flats 	<ul style="list-style-type: none"> - detached and semi-detached houses - on the ground multiples, rows, terraces, etc. - ground related units in garden apartments and at base of taller apartments. - many units should be adaptable to changing family circumstances and to extended family use.
Space	<ul style="list-style-type: none"> - minimum one - bed-sitting room 	<ul style="list-style-type: none"> - one and two bedroom units 	<ul style="list-style-type: none"> - one bedroom per child is social preference with large kitchen, living/dining activity or family room, substantial storage.
Distribution	<ul style="list-style-type: none"> - both in concentrations of single units or mixed with paired units or as rooms or flats in family type units for elderly grandparents, or rentals. 	<ul style="list-style-type: none"> - distributed throughout community 	<ul style="list-style-type: none"> - all family units should at best be on the ground, at least ground related; maybe mixed with pairs, singles, groups.

Tenure	<ul style="list-style-type: none"> - mainly rental units private or public - predominately private ownership or group and private rental plus senior citizen units with public assistance. - ownership is a high priority but will require a full range of opportunities for private and mutual ownership; private and mutual ownership; private and public rental.
Access to Centres	<ul style="list-style-type: none"> - ready access to community centres and to sub-central area. - ready access to community centres and to sub-central area. - within reasonable walking distance to schools; convenience stores and social facilities, day care facilities, public open space and local transportation services.
Density	<ul style="list-style-type: none"> - emphasis on upper density housing. - emphasis on middle and upper density areas. - emphasis on low to medium density area.
Co-operatives	<ul style="list-style-type: none"> - Non-profit co-operatives can be created by and operated by municipalities or by such community organizations as churches, credit unions, service clubs, co-operatives, trade unions and neighborhood groups formed solely to operate a non-profit housing project. They must agree to manage and operate the housing units at cost, thereby providing reasonably priced housing for families, senior citizens, and persons with physical disabilities. Provincial and federal programmes provide incentives and supports to these co-operatives.

However, there are limitations beyond which densities cannot be realistically increased.²² Beyond a certain point the community would become less attractive for the many families with children seeking houses with their own gardens. For example, above about 100 dwellings per hectare (40 per acre), a majority of the units will be no longer ground-related. (See Figure 4.42a). Secondly, as densities rise, the savings in land costs are offset by higher building costs. For example, at densities somewhat above 50 dwellings per hectare (20 per acre), parking can no longer be provided at ground level. As densities rise beyond this certain point, savings are no longer accomplished. (See Figure 4.42b). The reason for this is that housing is only one component of the entire community. Increasing the density of housing does not increase the density of roads, parks and so on.

The net densities of the four other new communities around Toronto - all of which have faced similar needs to attract residents and pay their way - all fall within a similar range of densities as proposed for Seaton.

4.43 Housing Land

Based upon the foregoing densities and other projections, the land required solely for housing to accommodate 78,000 persons is about 940 hectares (2,324 acres). (See Table 4.43).

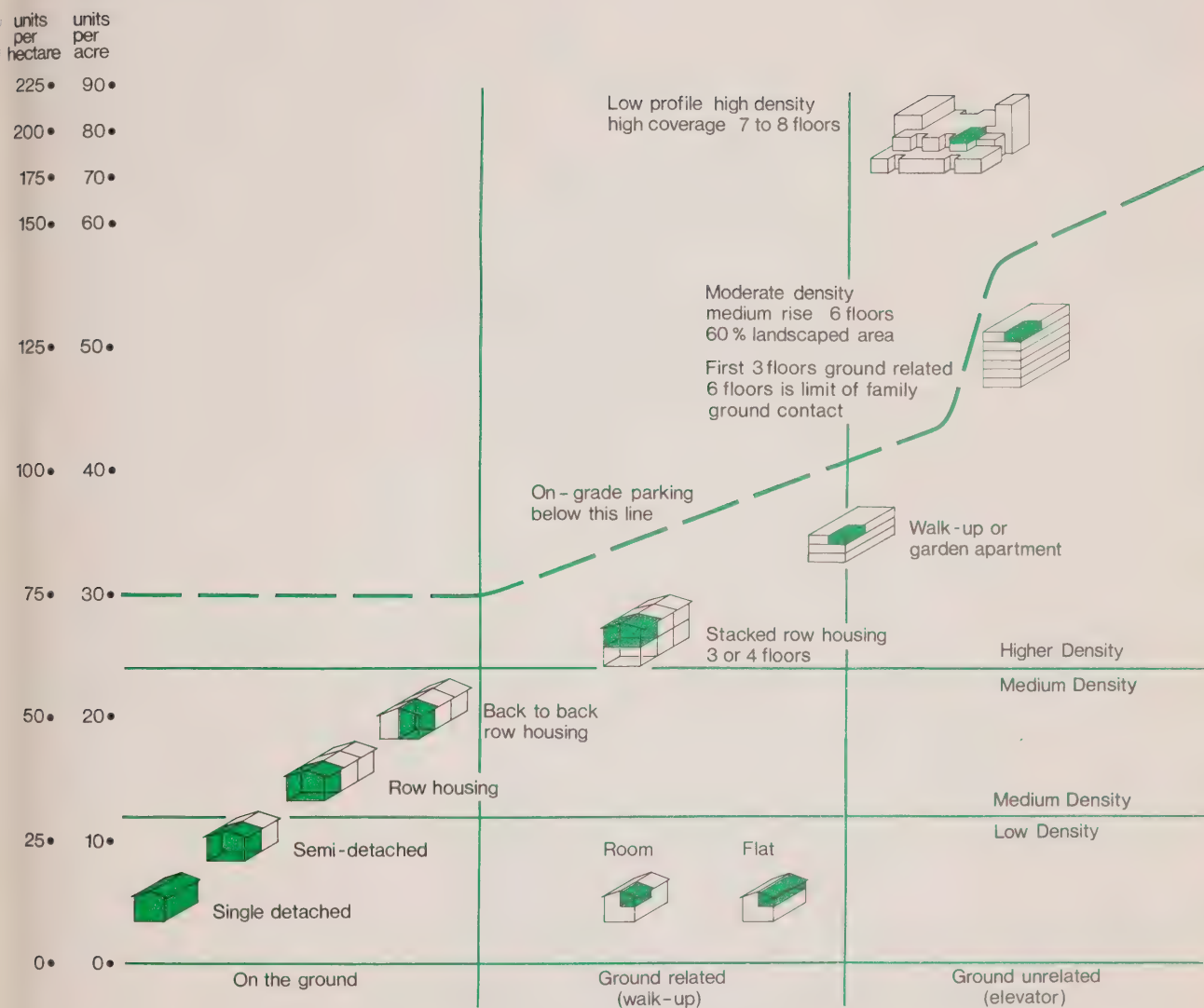
4.50 Retail Potential

A range of retail outlets have been planned to provide for most of shopping needs in the new community except for the high order of goods and services which will be provided by the Pickering Main Central Area.

The provision of shops and stores has been based on four studies which demonstrated a general agreement in their conclusions. These were:

- An early study to determine present and future shopping patterns and prepare design guidelines;
- Statistical analysis, which among other things, tested the potential of the main shopping component in various locations, stages, regional settings and local shopping structures;

Figure 4.42a
Housing Form Related to
Density



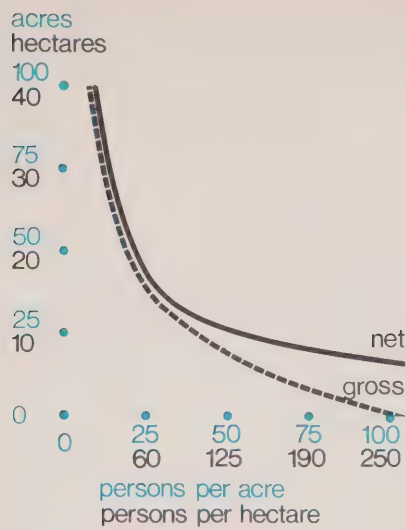
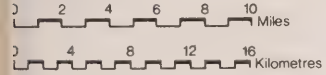


Figure 4.42 b
Housing Land Related to Density

Figure 4.51
Regional Shopping Centres



- Existing
- Proposed and Under Construction
- Above 500,000 square feet
- 250,000-500,000
- 100,000-250,000
- Below 100,000
- Scarborough Town Centre
- Malvern District Centre
- Hwy.401 and Hwy.2 Project
- Sheridan Mall
- Pickering Town Centre

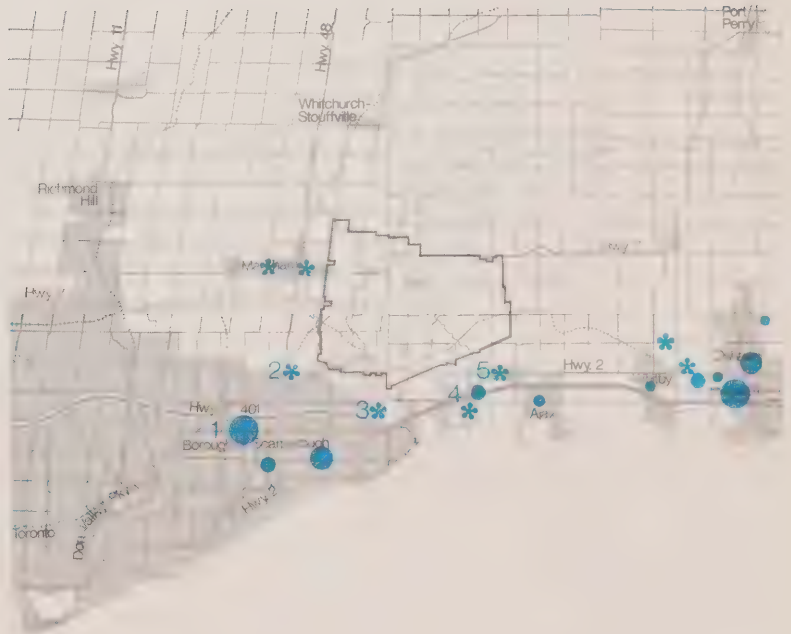
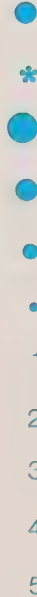


TABLE 4.43
HOUSING DENSITIES & LAND UTILIZATION

Type	Dwelling Units* per		%	Persons per Dwelling	Dwellings**	Area**		Persons
	Hectare	Acre				Hectares	Acres	
Low	20	8	50	3.2	12,971	656	1,622	41,507
Medium	37	15	35	3.0	9,080	245	605	27,240
High	100	40	15	2.3	3,891	39	97	8,949
TOTAL					25,942	940	2,324	77,696

Average residential density: 83 persons per hectare
: 33 persons per acre

* All areas given are net, i.e. include housing land and access roads only.

**Area figures have been rounded to nearest acre or hectare; numbers of dwelling units have been calculated on unrounded data.

- Market analysis based on the planning which immediately preceded the 1975 Recommended Plan; and
- A 1979 retail market study by Larry Smith and Associates Ltd.

4.51 Overall Considerations

In the urban corridor defined to include the Borough of Scarborough and the Town of Markham on the west and extending east to encompass the Towns of Pickering, Ajax, Whitby, the City of Oshawa and the western part of the Town of Newcastle, there are operating some 19 department stores. This current inventory of department stores is clearly polarized at the western and eastern ends of the urban corridor with the result that the residents in the middle of the corridor in Pickering and Ajax currently travel extensively east and west to conduct the major portion of their department store shopping. (See Figure 4.51).

By 1991 it is projected that the urban corridor will require an additional 15 to 18 department stores to serve demand and that by the turn of the century the additional department stores required will have risen to between 26 and 30 new units.⁸⁰

Reviewing what is currently under construction plus the various projects which have been proposed, there is a potential supply of between 11 and 16 additional department stores in the urban corridor excluding any units that may be proposed within Seaton. Supply of that order would appear to match fairly closely to the additional demand identified up to 1991.

Within the urban corridor, the Pickering/Ajax sector is projected to warrant at least three new department stores as the population in the sector approaches 140,000 persons and as many as seven or eight when the sector population reaches 240,000 persons. Of the three additional stores warranted in this sector with a threshold population of 140,000 there is a potential need for one of the units, a discount type department store, to be located in the Seaton Community. The other two units are expected to be properly attracted to the Pickering 'main central area' or Town Centre which is situated between Highway 401 and 2 at Liverpool Road.

In the longer term, as the population threshold of 240,000 in this sector is reached (and as Seaton reaches its ultimate population) the development of two or possibly even three department stores within the Seaton Community would still have the community's retail facilities in a subordinate role to the retail component of the Pickering Town Centre (i.e. Main Central Area) located on Highway 401 corridor further to the south.

4.52 Retail Structure

The retail structure of Seaton will consist primarily of three distinct types of facilities, as set out below:

<u>Type of Facility</u>	<u>Service Area</u>	<u>Timing</u>
Convenience Shopping	Two neighbourhoods	Early in Stage 1
Community Central Area	Four-five neighbourhoods	Late in Stage 1
Sub-central Area	Urban community	Stages 3-4

4.52.1 Convenience Shopping at the Local Level

There will, in a community the size of Seaton, be a need for local convenience retail/service locations, with a jug milk store operation as the principal facility, providing staple foods, sundries and a range of convenience goods. These will likely be located between neighbourhoods on arterial roads. Generally, one centre of about 900 sq. m. (10,000 sq. ft.) will serve two neighbourhoods. Site requirements will be in the order of 0.2 hectare (half an acre).

4.52.2 Convenience Shopping in the Community Central Areas

Convenience goods stores, as the name suggests are normally patronized for convenience, with little comparison between price and quality made by the customer. For comparison goods, on the other hand, shoppers frequently compare prices and quality between several stores before making a purchase. This distinction is not precise, and changes as income rises.

Community centre stores provide for the day-to-day needs of the immediate community through the sale of convenience goods such as food, hardware, paint, drugs, liquor and beer, and sundries, and personal services such as dry cleaning, banking, shoe repairs and barbershops.

TABLE 4.52.2
COMMUNITY CENTRAL AREA RETAIL/SERVICE STRUCTURE

Type	Gross Leasable Area	
	Sq. Metres	Sq. Feet x 1,000
<u>CONVENIENCE GOODS</u>		
Food	2,790 - 3,720	30 - 40
Hardware/Wallpaper	280 - 650	3 - 7
Drugs	650 - 930	7 - 10
Liquor/Beer/Wine	460 - 740	5 - 8
Sub-total	4,180 - 6,040	45 - 65
<u>SERVICES</u>		
Eating/Drinking	280 - 370	3 - 4
Institutional	370 - 560	4 - 6
Other Personal Services	280 - 460	3 - 5
Sub-Total	930 - 1,390	10 - 15
TOTAL	5,110 - 7,430	55 - 80

SOURCE: Larry Smith & Associates Ltd.

The number of such centres required will be governed by the number of major food stores required outside of the sub-central area. The market demand analysis has indicated a probable need for three such major supermarkets which will serve as anchor tenants in community centres.

Construction of the first community central area will be part of the development of the first stage of Seaton.

4.52.3 Comparison Shopping in the Sub-Central Area

Shopping in the sub-central area will be the most comprehensive in Seaton and serve the entire population of 75,000 to 90,000. This will permit the sub-central area to provide general merchandise, apparel and home furnishing in as much depth, range and variety as is available. In addition, a range of commercial and personal services will be included.

The demand for department store type merchandise can be met with a variety of combinations of traditional and discount-type department stores and smaller stores selling similar merchandise. The combination proposed for the sub-central area at ultimate development is that of two full-line traditional department stores and one discounter. These stores will occupy a total of 22,000 - 28,000 sq. m. (240 - 300,000 sq. ft.).

Other major tenants will be two supermarkets. The ultimate total gross leaseable area of the centre will be in the order of 57,000 - 74,000 sq. m. (609,000 - 792,000 sq. ft.). An office component of 33,000 sq. m. (350,000 sq. ft.) should also be accommodated. The land requirement will be 14 - 22 hectares (35.0 - 55.0 acres).

The appropriate timing for commencing development of the sub-central area in Seaton would appear to be when the community population base approaches the 30,000 persons level. At that level there will be a demand to support the establishment of a sub-central area retail/service project encompassing about 250,000 square feet gross leasable area, with a discount department store, a major supermarket, and a home improvement centre facility as the three largest space users in the project.

TABLE 4.52.3
SUB-CENTRAL AREA RETAIL/SERVICE STRUCTURE
AT 90,000 POPULATION

Type	Gross Leasable Area	
	Sq. Metres	Sq. Feet x 1,000
<u>CONVENIENCE GOODS</u>		
Food	4,200 - 8,400	45 - 90
Hardware/Wallpaper	740 - 930	8 - 10
Drugs	930 - 1,120	10 - 12
Liquor/Beer/Wine	1,500 - 1,860	16 - 20
Sub-total	7,370 - 12,310	79 - 132
<u>COMPARISON GOODS</u>		
Department Store	22,300 - 27,900	240 - 300
Other General Merchandise	930 - 1,400	10 - 15
Apparel/Accessories	6,500 - 8,840	70 - 95
Household Furnishings	1,860 - 2,300	20 - 25
Other Comparison DSTM	5,580 - 6,500	60 - 70
Sub-Total	37,170 - 46,970	400 - 500
<u>OTHER RETAIL</u>		
Home Improvement Centre	2,800 - 3,720	30 - 40
Automotive	1,400 - 1,860	15 - 20
Sub-Total	4,200 - 5,580	45 - 60
<u>SERVICES</u>		
Eating/Drinking	1,860 - 2,330	20 - 25
Institutional	2,330 - 2,800	25 - 30
Other Personal Services	930 - 1,400	10 - 15
Theatre	2,800 - 3,720	30 - 40
Sub-Total	7,920 - 10,250	85 - 100
TOTAL	56,740 - 75,110	609 - 792

SOURCE: Larry Smith & Associates Ltd.

4.52.4 Special Purpose Commercial Areas

In addition to conventional shopping, there may be a wide range of goods and services required which are either not easily located within the proposed three-level shopping hierarchy, or which have not yet been identified as future requirements. This could include automobile dealers, drive-in restaurants, building supply stores and other diverse facilities, many of which fall into a general category of "highway commercial".

To accommodate these facilities, additional sites may be required primarily along arterial roads and to a lesser extent at major intersections in the urban area. Many of the shopping facilities can be organized on a campus basis - such as home centres, or automobile sales and service areas with parts outlets. Architectural landscaping would be incorporated here.

Service stations pose a special problem and require further research and analysis. There is a current tendency toward fewer and larger stations. Care will be taken on the setting of these to minimize the visual impact and traffic flows on the surrounding areas.

4.60 Social Requirements

4.61 Jurisdiction Over Social Planning

Official Plans, including that of the Region of Durham, deal only with the physical facilities required for social programs, leaving policies regarding social programs, delivery systems, organization, funding and policy making to municipalities and appropriate provincial ministries and special purpose agencies.

Consequently, this section is limited to dealing with facilities, such as schools, libraries, health care units and parks, and even these aspects will be subject to further review and the requirements of the agencies with relevant jurisdiction.

4.62 Specific Social Facilities

The tremendous range and complexity of the social infrastructure for a community of 90,000 is reflected in the abbreviated requirements for selected facilities outlined below.

4.62.1 Education Facilities

Facility (Grade)	No. of Population Served	Number Students per School	Number School Facilities
PUBLIC SCHOOLS:			
Elementary (Jr.K - 8)	4,500-5,000	400 -650	15
Composite Secondary (9 - 13)	25,000	1,450	3
Special Vocational School	75-90,000	1,000	1
School for the Trainable Retarded	75-90,000	100	1
SEPARATE SCHOOLS:			
Elementary (Jr.K - 8)	10,000-15,000	600	7
High School (9 - 13)	75-90,000	600	1

In education, consideration has been given to the requirements of different types of schools and to the fact there is a growing demand for formal lifelong learning opportunities. Schools can also offer a wide variety of resources for community activities.

Sites have been positioned to ensure these and other facilities will be available to accommodate adult education, special education and private programs. Where appropriate, schools will be located close to one another to increase the efficient and maximum use of space.

Elementary Schools

Where possible, elementary schools will be located so they are easily and safely accessible for young children, and convenient for community uses. Generally, they will be accessible without crossing major roads.

There will be fewer separate elementary schools and since they will be more dispersed throughout the community than public schools, the preceding criteria will have to be modified somewhat with a greater emphasis on transportation access.

Secondary Schools

Secondary schools will serve larger areas of the community and, therefore, will require good access by public and private transport. The wide range of programs and facilities in secondary schools affords many opportunities for wide community use. Therefore, they will be located in conjunction with community centres and the sub-central area, and adjacent to major parks. This should enhance their availability to the whole community.

4.62.2 Libraries

Facility	Population Served	Number
Main Library	30,000-40,000	1
Branch Library	20,000-30,000	2

The main library can be accommodated in a central location in conjunction with other community-wide facilities. Branch libraries are proposed for two community centres.

4.62.3 Recreation Programs and Facilities

Facility	Standard per 1000 population		Population served
	Hectares	Acres	
Local Spaces, Tot Lots, Etc.	0.2	0.5	local area
Neighbourhood Park and Facilities	0.6	1.6	4,500-5,000
Community Central Area Park and Facilities	0.4-0.5	1.0-1.3	20,000-30,000
Sub-Central Area Park and Facilities	0.4	1.0	75-90,000
Corridors and Walkways	0.4	1.0	75-90,000

Space facilities for recreation will be based primarily on the emerging character of the community. At this stage, emphasis is placed on providing sufficient space to allow for this flexibility. The above areas do not include the large inventory of major open space.

Residential and neighbourhood facilities should be within walking distance of homes, and, when possible, will often be located in or near elementary schools to optimize the available resources. At community and sub-central area levels, emphasis will be on major facilities to serve larger numbers of people and to provide for community-wide activities. Both active and passive activities should be provided at each level. In this way a variety of needs can be met at the same time.

4.62.4 Health Facilities

The focal point for medical and allied services will be community health clinics. Each of these should include a number of general practitioners and specialists working there on a full-time basis. The clinics will be located in the community and sub-central areas for easy accessibility.

<u>Service</u>	<u>Population Served</u>	<u>Facilities</u>
Community Health Clinic	15,000-20,000	5
Public Health Office	75,000	1
Nursing Home (90 beds/home)	35,000	2
Therapeutic Day Care Centre	10,000-15,000	5-8
Therapeutic Residence	7,500	11
Home for Mildly Disturbed	15,000-20,000	5

Expansion of existing major hospital facilities in the Ajax-Pickering area will provide specialized medical needs as well as laboratory, radiology and ambulance services. Within Seaton a public health office is planned for the sub-central area.

The new community is expected to require two nursing homes. The nursing homes, therapeutic facilities and homes for the mildly disturbed need to be located near services in community centres and the sub-central area.

4.62.5 Special Residential Facilities

Facility	Population Served	Number
Home for the Aged (100 beds each)	15-20,000	5
Home for Mentally Retarded (7 beds each)	15-20,000	5
Residence for Handicapped Adults (40 beds)	75-90,000	1

The community will require a range of residential, institutional and group home facilities. These will be related to children's mental health programs, family and children's services and special housing for the elderly, handicapped adults and the mentally retarded.

They should be located in such a way as to encourage residents to take part in community life and should be close to other community amenities. Their location should also encourage use by people who, while living in their homes, need support services. Whenever possible, special residential facilities should be developed before or concurrently with other housing in new areas so that the area grows around and with the facilities. For instance, homes for the aged should be located within residential areas close to community centres.

4.62.6 Churches and Religious Groups

Type	Size		Number
	hectares	(acres)	4
Campus Cluster (2-3 churches each)	1.2	(3)	
Separate Church	.8	(2)	12
Total Congregations			23

In order to attract a diverse population, the new community will require varied opportunities for religious worship, congregational activities, religious education and other types of spiritual guidance and counselling. Many of the churches and places of worship may sponsor and provide facilities for programming such as day care, youth groups and meeting spaces.

The major criterion for church location in conjunction with the community central areas and the sub-central area. Separate church sites will be required both in these centres and at intersections of arterial roads within the community. Roman Catholic churches will generally be located adjacent to separate elementary schools.

4.62.7 Other Facilities

Space for facilities, such as those for child care, legal and correctional services, and child and family services, financial assistance, employment programs and information services, will be included as part of the central areas or residential areas, as appropriate.

4.70 Urban Land Requirements

Land requirements and uses designated for the urban community east of the West Duffin Creek are in Table 4.70.

Residential development would occupy only one third of the area. Industrial uses would occupy about a quarter.

4.80 Development Constraints and Opportunity Analysis

4.81 General Analysis – Urban Area

To determine the area generally available for development east of the West Duffin Valley, all of the known major physical constraints for housing and industrial uses were considered (See Figures 4.81 and 4.82).

These include valley lands, existing hamlets, major woodlots, steep slopes (greater than 10 per cent), 30 NEF noise zone, gravel pits, marshy areas, oil pipeline.

The Noise Exposure Forecast (NEF) contours were taken from maps provided by the Toronto Area Airports Project (TAAP), and reflect the potential impact of five runways. The important architectural and archeological sites (grade 1 and 2) were also plotted, but not measured because the area covered is relatively small.

TABLE 4.70
LAND REQUIREMENTS FOR SEATON URBAN COMMUNITY*

Uses	Area		Per Cent
	Hectares	Acres	
RESIDENTIAL			
- Low density	656	1,622	
- Medium density	245	605	
- Upper density	<u>39</u>	<u>97</u>	<u> </u>
Total	940	2,324	33
INDUSTRIAL	723	1,786	25
COMMERCIAL	75	185	3
INSTITUTIONAL			
- Secondary schools	21	52	
- Elementary schools	48	120	
- Other	<u>9</u>	<u>22</u>	<u> </u>
Total	78	194	3
TRANSPORTATION			
- Highways	115	282	
- Arterials	216	534	
- Other	<u>23</u>	<u>58</u>	<u> </u>
Total	354	874	12
OPEN SPACE			
- Local parks	41	102	
- Community parks	25	61	
- Golf courses	42	105	
- Valleys and wooded areas	<u>391</u>	<u>966</u>	<u> </u>
Total	499	1,234	18
FUTURE STUDY	<u>173</u>	<u>428</u>	<u>6</u>
TOTAL	2,842	7,025	100

* All lands east of West Duffin Creek

The planned urban area east of the West Duffin Valley is just over 2,823 hectares (7,025 acres). Of this, 2,400 hectares (6,000 acres) are substantially free of any major constraint, providing the 30 NEF noise zone is excluded. The 30 NEF contour defines the area within which resident complaints can be expected and above which C.M.H.C. requires adequate insulation as a condition of financing. All the proposed residential areas in Seaton are outside the 28 NEF contour.

Major urban land uses are affected differently by certain constraints. Housing, for example, is less restricted by steep slopes than industry.

An environmental analysis for secondary planning has been conducted on the proposed first stage of development and a methodology produced to guide further analysis.

This area amounts to 1,380 hectares (3,450 acres) of which 1,240 hectares (3,100 acres) are free from all notable constraints for housing and associated uses (See Figure 4.81).

4.82 Industrial Areas

There are two potential industrial zones; one along the northern boundary east of the West Duffin and the other in a north-south alignment on either side of Brock Road and extending along the railway along the south edge of the site. The total area for these zones is 723 hectares (1,786 acres).

Physical constraints were measured including rights-of-way for Highway 407, Highway 7, Brock Rd. and railways. The area around Green River was not included because of its remoteness, plus the alternative requirements for Highway 407.

Of the total land within the two zones, some 400 hectares (1,000 acres) are not affected by any substantial physical constraints. A further 325 hectares (800 acres) are affected by minor physical constraints. Therefore, some 723 hectares (1,800 acres) in total are nominally available for industrial development (See Figure 4.82).

Figure 4.81
Development Constraints:
Residential

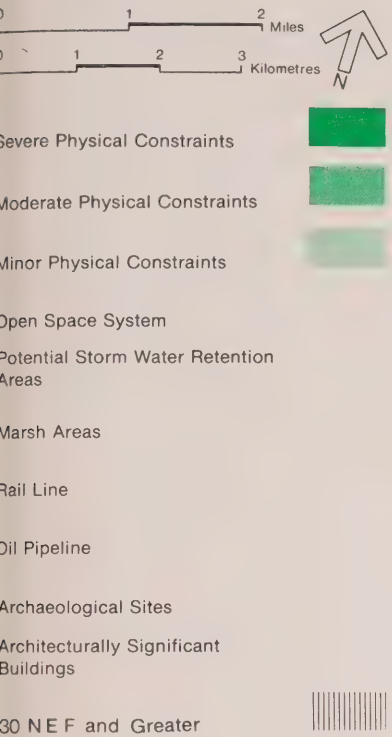
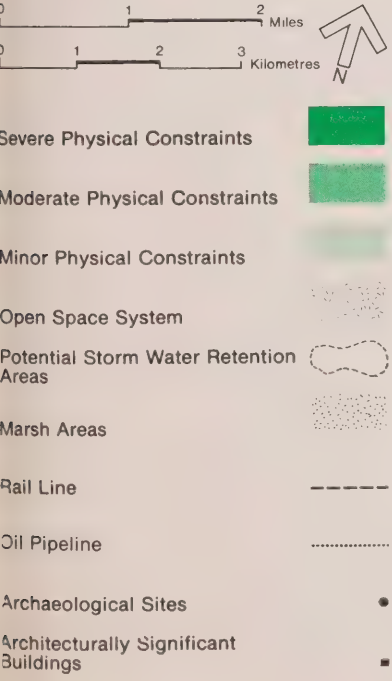


Figure 4.82
Development Constraints:
Industry



Plan

5. Land Use Plan

Preparation of the land use plan for the new community represents the beginning of the planning process. It lays the foundation upon which development, under the influence of many people including its future residents, will become a reality.

The plan does not attempt to detail the final form of the community. A community of this size will take at least 30 years to develop, and even longer to fully mature. Human needs and aspirations are likely to change over this period. In defining the basic overall structure, the plan endeavours to leave the greatest possible freedom for future changes and choice. It has flexibility to adjust to new situations.

The main purpose of the plan is to arrange those major components of the new community which affect its overall physical organization and structure. Suitable land in type and quantity must, in the simplest sense, be allocated for housing and industry. The key facilities and centres of activity must be distributed where they can best serve the community. These uses must be considered in close relation to car, public transit and pedestrian movement. At the same time provision must be made for the community-wide services for drainage, sewerage, and water supply.

The plan will provide the context for preparing detailed plans for the housing and industrial areas, activity centres and other main components to be followed by architectural design and actual development. During this process, there will be ample time for residents to contribute to and shape the form of their community.

5.10 Planning Approach

In order to provide an overall understanding of the urban plan before considering each component in detail, this section reviews the main considerations which underlie its basic land-use and circulation structure.

5.11 General Approach

"Community" is a familiar but complex concept. It implies the rich and diverse mix of formal and informal relationships which develop among individuals and groups by purpose and accident over a wide variety of functions and interests, so that life has some measure of fullness and satisfaction. The term suggests a multi-dimensional, continuing, dynamic

web of interaction at a level too complex for man to organize and plan in totality.

In summary the plan should offer newcomers and residents the greatest possible range of opportunities in education, work, housing, recreation, health care and all activities and services. Dwellings should be provided in a wide range of size, type and character. Housing densities should allow considerable variation in living environment.

To provide genuine choice, it is vital that journeys be equally convenient from one's home to all parts of the community via public and private transport.

This objective can best be met by providing a high degree of accessibility for residents to employment, shopping, institutions, facilities, etc. This implies a strong design relationship between residential density distribution, facility distribution and overall access.

The recommendations have recognized that when freedom of movement is provided a high proportion of journeys are likely to be by private car.

Accessibility means a very different thing to a two-car family and to those without the use of a car. Children, the disabled, old people and those who are unable or disinclined to use private cars should have as much freedom to enjoy the diverse opportunities in the community as others who drive.

There must be real choice between public and private transport with fast, comfortable, convenient and frequent public transit within easy walking distance of all residents and places of activity throughout the community. Free and safe movement for pedestrians and cyclists must also be provided.

The problem in any planning process is that perfectly reasonable assumptions made today may soon become invalid, and present forecasts may be changed by any number of unanticipated future events. For these reasons, the plan must be flexible enough to respond to these changes, whether in land-use, travel demands or transport technology.

The plan must be capable of adjustment to changing priorities, needs and circumstances. In addition, the plan should allow development for

different approaches in different parts of the community based on the particular needs and evolving expectations of residents in a local area.

Development of a new community is a major undertaking requiring considerable capital investment. However, the community must eventually pay its own way. It must not create an undue tax burden on local homeowners or industry, nor can it expect a disproportionate share of public funds from other sources. Therefore, the plan must ensure that all resources available can be used effectively and efficiently. It must enable public and private investment to contribute toward growth of the new community in the most economical way.

There are certain parts of most communities to which almost everybody responds with pleasure. These are generated by the relationship of buildings to each other and to natural features. Seaton has an attractive setting with undulating countryside traversed by major valleys.

Aesthetic goals should be met through a visually pleasing and well structured urban form. Its parts should be easily distinguishable and interrelated. It should have an intensive centre of activity to provide a sense of physical and social place. And it should have differentiated and well-patterned movement systems.

Finally, the plan must foster a sense of innovation and imagination tempered by the realization there are no easy, cheap solutions brought by technological gimmicks or social experiments. However, there will be ample scope for testing new ideas and techniques in the new community. What the plan provides above all is an opportunity to put together all those ordinary but proven facilities and services found in any established community of comparable size - but because they were provided in an ad hoc manner over a long period are not used as effectively as they might be.

The physical development plan cannot in itself achieve these goals. It can promote them but not guarantee them. Successful implementation will require initiative in housing policies, social development, financial management and many other fields.

5.20 Residential Areas

This section deals with the overall residential environment. The broad distribution of housing is reviewed first. Then, because of the funda-

mental importance of housing areas, the potential distribution of local facilities is outlined.

The projected requirements which provide the basis for these recommendations have already been presented.

The planning recommendations are presented as general development guidelines for an implementation period likely to extend 25 to 30 years. Over this period, although the basic principles guiding location are expected to remain, the housing types and densities will adjust to reflect the current housing preferences, market conditions and local environmental considerations.

For this reason, while the location of residential land uses are shown for the entire community, separation by residential density is shown only for Stage I. (See Figure 5.21)

It should be noted that the requirements for the amendment of the Durham Plan require only that the location of predominantly residential land uses be shown. However, a brief discussion of the component density ranges and the factors affecting their planned disposition may be of interest.

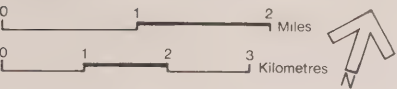
5.21 Housing Types and Distribution

The recommended plan illustrates a broad pattern of housing based upon three basic density types - low-density areas at an average of 20 dwellings per hectare net, medium density at 37 and high at 100.

These three density ranges conform to those in use by the Town of Pickering. Each density range is expected to contain a diverse mix of housing types.

The overall distribution of the densities follows directly from the general attitude taken toward community structure. For many, the prime consideration is to have a high level of convenience and choice of community facilities and services - shops, schools, public transit and the like. For others, having private open space or access to major public open spaces is more important. Others will seek a compromise or "trade-off" between these two.

Figure 5.21
Residential Distribution



Residential



5.21.1 High-Density Areas (average 100 d.u./hectare). This density could be accommodated in six to eight storey apartment blocks, although a mix of higher or lower building forms could be also expected.

The high-density areas are next to the three community centres and the sub-central area where they have the highest accessibility to high-order community facilities and public transit. Many of these areas are located near, and will overlook, the main valley systems which contain broad expanses of natural open space.

These will be the most urban housing environments. The apartment blocks in many cases could be totally integrated with the commercial and institutional facilities in the centre. The provision of private open space will be low.

5.21.2 Medium-Density Areas (average 37 d.u./hectare). These will consist largely of street townhouses and three-storey walk-up apartments. Although most of these units are ground-related and will have private open space, such space is necessarily restricted in this density range. This will be compensated by large amounts of public space.

Prime location for medium-density housing is around the community central areas and sub-central area within about a five minute walk. In this location, the housing will share most of the advantages of the upper-density housing noted above.

There are also two other locations which present alternatives. These could be used to various degrees as development proceeds, depending on market conditions and housing preferences at the time.

The first is along the minor arterial roads. These are seen as the main streets for local vehicular movement whether by bus or car. As such, it is also expected they may be used by many local facilities serving more than a walk-in catchment but not seeking a community centre location. Such streets have been traditionally the focus of local community life. Only in comparatively recent times has this been jeopardized by disruptive traffic volumes. With appropriate traffic planning, this vital function can perhaps be reinstituted.

The second is along the main areas of natural open space to the east and west and south of the urbanized area. While access to local facilities may be less here, the public open space may further compensate for lack of private open space.

5.21.3 Low-Density Areas (20 d.u./hectare). Single-family houses either detached or semi-detached will be the predominant residential type in these areas. The open space will be mainly private in the form of front and back yards, but tot-lots, walkways and parks for public use will also be provided. As much natural landscape as possible will be retained.

These areas cater mainly for family households orientated to the car. Their location requirements are different than the households in the higher density areas. Direct access to the sub-central area and community centres is low, relative to other density types. On the other hand, there is a spaciousness about the home and good access to areas of natural environment. Local services and facilities are conveniently located, but choice is not high.

5.30 Local Facilities

Many local facilities directly serving residential neighbourhoods will be contained within the neighbourhoods. Such institutional uses as elementary schools and day-care centres, recreational uses such as local parks, and convenience stores and services, will be located in residential areas. (Exceptions will occur, as in the cases of neighbourhoods which share local shopping facilities or which are adjacent to community central areas, which will not require separate local shopping facilities).

Public elementary schools, with abutting local active-use parks, will generally be planned in mid-block locations. Separate elementary schools may be located on minor collector roads, since their service area will tend to extend over more than a single neighbourhood.

TABLE 5.30

LOCAL FACILITIES WITHIN HOUSING AREAS

Facility	Population	Approximate Number	Site Area	
			hectares	acres
Public Elementary School	4,500-5,000	15	2.4	6
Separate Elementary School	10,000-15,000	7	2.0	5
Local Park	4,500-5,000	15	3.2	8

5.40 Community Central Areas

Community central areas are multi-service centres providing for the day-to-day needs of the 20 - 25,000 people surrounding them.

The components of the community central areas include shopping, health, leisure, social and a diversity of other facilities.

The plan for Seaton contains three separate community central areas within the residential fabric of the community and the elements of another centre within the sub-central area.

5.41 Shopping

The shopping component of the community central area will be as set out in Table 4.52.2. The major tenant will be a large supermarket, supported by convenience goods and personal service outlets. These may or may not include automotive supplies and home improvement items. The total gross leaseable area of the retail and service component of the centre will be in the order of 7,800 to 11,600 sq.m. (85,000 to 125,000 sq.ft.).

5.42 Health

The community central area will be the focus for health care facilities such as a medical clinic, nursing home and a home for the aged.

5.43 Other Facilities

Other facilities which could be clustered within such a centre are the branch library, church campus complex, local post office, fire station, and day-care centre.

5.44 Location and Access

Community central areas have been located at intersections of major and minor arterial roads. (See Figure 5.44). This provides high accessibility both from the wider community and its more immediate catchment.

Similar advantages also hold for the local bus system. A centre can be served by both a direct service along the major arterials to the central area and a local service along the minor arterial from the nearby housing.

These centres will be linked to the surrounding population by an internal open space system with practically every home with a 10 to 15 minute walk.

5.50 Sub-Central Area

The sub-central area by its location, content and design is the heart of the new community. The greatest diversity of goods, services, people and events should occur here. It should be the place where "the action is", where events that are important to the whole community occur.

This section reviews the role of the sub-central area within the community and beyond; the reasons for its location, size and site; and the initial planning work undertaken to examine its potential and its relation to the rest of the plan.

5.51 Role

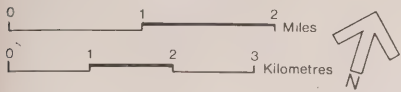
The sub-central area has been planned as a comprehensive centre having all of the one-of-a-kind facilities and activities that serve the entire community.

The area will contain all the functions associated with the main urban centre, including not only shopping and business, but also cultural, social, recreational, entertainment and spiritual activities. It will be the main focus for public transportation. It will also be a major work place - especially for services and offices - and a living area with upper density residential quarters of high quality.

The development of this diverse, active and distinctive centre is intended to serve a number of purposes. It would significantly aid in creating an early and strong sense of community identity. The concentration of stores will create the best opportunity for establishing comprehensive comparison shopping. These in turn will serve to attract a greater diversity of employment opportunities - particularly in offices - and the provision of high-order social and non-commercial facilities. Finally, although clearly dependent on decisions by other agencies, a large multi-use centre is likely to be beneficial in fostering the development of regional transit through the community.

Figure 5.44

Location of Community Central Areas



Community Central Areas

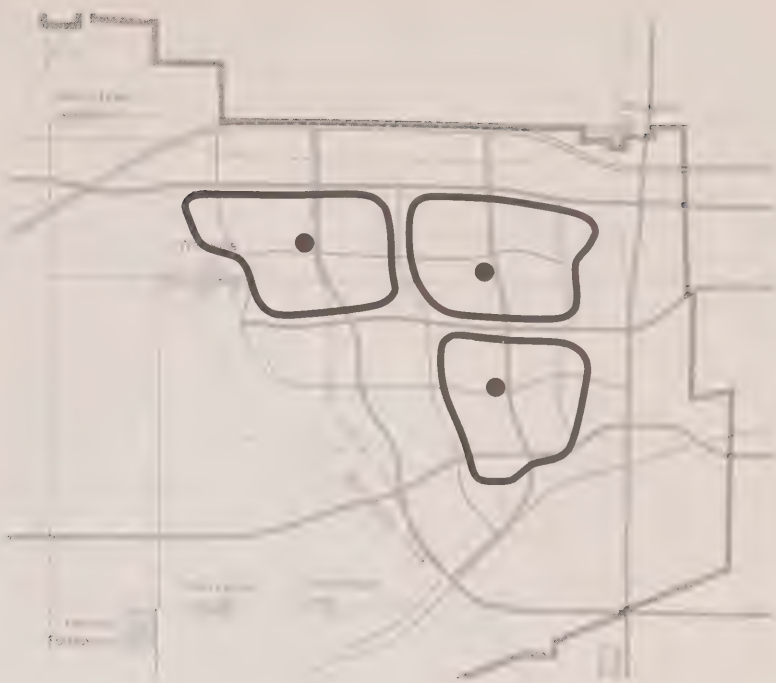
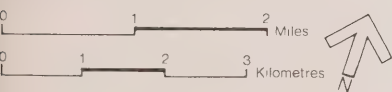


Figure 5.52

Location of Sub-Central Area



Sub-Central Area



The sub-central area is not seen as a major regional centre. A number of existing and proposed commercial developments within the region will limit its wider commercial influence. (See Section 4.51). All of these centres are better related to established population areas and to the existing freeway system.

Furthermore, the Pickering Town Centre at the Liverpool Road/Highway 2 intersection has been designated the Main Central Area for the entire Town of Pickering in the Durham Official Plan. It is planned to provide a fully integrated array of shopping, personal and business service, office, institutional, recreation and residential uses. The Seaton Central Area will be a "Sub-Central Area" as defined in the Durham Official Plan. It will, therefore, be planned and developed similar in kind, but generally smaller in scale, than the Pickering Town Centre.

The viability of the sub-central area is clearly tied closely to the development of the residential component of the new community. The sub-central area will grow gradually into its full development, with its size and facilities matched to the staged growth of Seaton. This staged growth will avoid the possibility of any adverse effect on the planned development of the Pickering Town Centre.

5.52 Site

The sub-central area has been located on the east edge of the West Duffin Valley (See Figure 5.52).

The site is bounded on three sides by major arterial roads and the high density housing at both ends. The north-south arterial road to the east provides access directly to Highway 407 and indirectly via Brock Road to Highway 401. The east-west arterial road to the south crosses the West Duffin and links up to Steeles Avenue further west. The arterial road to the north could be extended across the valley if required.

A minor east-west arterial road also passes through the middle of the site. This road would provide direct access from the neighbouring housing and other facilities directly to the east.

The internal public transit system has been focussed on the subcentral area. This will make it the most accessible place in the community, thereby reinforcing its community-wide role.

The sub-central area is crossed by the two main east-west pedestrian corridors that run across the community. These should provide vehicle-free pedestrian and cycle ways into the centre.

A right-of-way for a regional intermediate capacity transit system (ICTS) has been reserved through the area, should it be required in the future. The station would then serve as a terminus for the internal bus system.

5.52.1 Reasons for Location

The sub-central area site has been chosen to foster development of a comprehensive and community-oriented centre for the new community.

Placing it on the bank above West Duffin Creek provides potential for a highly distinctive centre. The valley is the most dramatic and attractive feature on the site. The area could also contain a major recreation resource in the proposed flood-control reservoir.

Expansion is provided for without leaving major vacant areas between the centre and neighbouring development to the east. This can be achieved by developing toward the West Duffin.

From a commercial viewpoint, the locale is strategic as it lies between the new community and the competing centres in the Metro area.

In comparison to the recommended location, however, the overall competitive position as a shopping centre was considered significantly less. It was generally less well-placed to serve the community as a multi-purpose focus. Also, there would have been major design problems in developing the centre next to a freeway not scheduled for completion for many years.

5.52.2 Description of Site

The site has considerable design potential. (See Figure 5.52.2). It has a varied topography, substantial woodlots and hedgerows.

The linear configuration of the centre allows for many and varied relationships between it and the valley. There are two areas with particularly spectacular views of the West Duffin Valley, but glimpses of the valley and its presence can be seen throughout the area. Several small transverse ravines provide ready-made pedestrian access to the valley floor.

Figure 5.52.2

Sub-Central Area Site



Central Area Pathway System



Pathway System to Valley Floor



Arterial Roads



Lookout Points



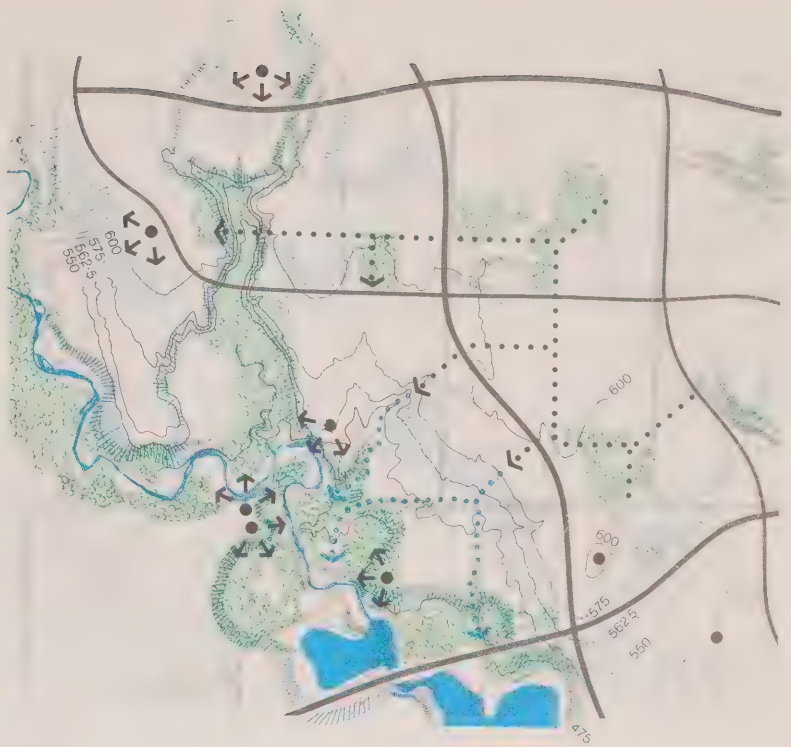
Steep Slopes



Existing Woodlots



Possible Lake



The shape also allows for growth in a number of ways. While always having a completed edge adjacent to the neighbouring uses to the south and east, major additional developments may occur by extensions of the linear form to the north, or by infill development toward the West Duffin Valley to the west.

From the eastern edge of the site to the valley's upper edge, the site slopes approximately 6 to 7½ m. (20 to 25 ft.) across the northern edge of the site, and 13½ to 15 m. (45 to 50 ft.) across the southern edge. This degree of slope creates an opportunity for stepped development, in which various uses can be overlapped and placed at different levels, yet still with direct ground access.

The sub-central area is linear in shape with a width of approximately 600 to 700 m. (2,000 to 2,500 ft.) from the major north-south arterial road to the valley rim. This is a comfortable 7 to 10-minute walking distance.

The sub-central area plus upper-density housing areas to the north and south is approximately 1,500 m (5,000 ft.) long. However, the commercial core would be contained in a compact area in the middle. A walk through this entire length is equivalent to that from the O'Keefe Centre to the City Hall in Toronto.

5.53 Components

The sub-central area should accommodate virtually all those activities having community-wide importance.

An initial list of recommended land uses has been identified, and their land requirement estimated. While these will require further study, they do provide a basis for determining the possible overall size and layout of the centre.

These initial land uses could require between 80 and 100 hectares (200 to 250 acres) if independently developed. Although all of the lesser land uses have not been identified, this area still represents a considerable over-estimation. It does not assume any stacking of uses such as offices over stores or housing over offices. Nor does it allow for any sharing of facilities - particularly car parking.

TABLE 5.53
SUB-CENTRAL AREA LAND BUDGET

Land Use	Area	
	Hectares	Acres
COMMERCIAL		
- shopping	15-22	35-55
- offices	6-8	15-20
- hotels	6	15
- other	10	25
INSTITUTIONAL	10-22	25-35
HOUSING	65	160
ENTERTAINMENT, RECREATIONAL	6	15
CIRCULATION SYSTEM (1)	12-16	30-40
PARKS AND OPEN SPACE	24	60
EXPANSION SPACE	26	65
Total	179-205	445-490

(1) Exclusive of Car Parking

The designated sub-central area site covers 70 to 90 hectares (175 to 225 acres), depending on how much development is placed along the valley rim. This excludes the upper density housing around the sub-central area, but allows dwellings for about 1,000 people built as an integral part of the centre.

5.53.1 Shopping

The market place is the heart of many urban centres. The necessity of buying and selling can become an occasion for participating in other community activities.

With 75,000 to 90,000 people, the new community can expect to attract up to three department stores (see Section 4.51) at full development. Two would be full-line department stores and the other a discount store. Together they would draw specialty shops, personal services, entertainment and other commercial activities associated with a major shopping area.

In addition, the sub-central area will also have some convenience shopping to serve the sub-central area community, its workers and the adjacent residential community. This will include a supermarket and associated convenience services.

5.53.2 Offices

The attraction of service employment to Seaton is particularly important as a means of also attracting a mixed residential population, diversifying its employment structure, and supporting its financial viability. A large part of the service employment will be in offices which are best located in the sub-central area with its many supporting amenities. Office employment would in turn augment these support facilities and create an active centre.

The amount of office employment which might be attracted to the sub-central area ranges from 2,500 to 5,000 jobs. The lower figure is based upon an initial estimate of the office employment needed primarily for essential services to the local community, while the upper includes a substantial number of office jobs that would serve a wider market.

This is confirmed by the 1979 retail study, which estimates that the sub-central area could attract a 32,800 sq. m. (353,000 sq. ft.) of office space at full development.

5.53.3 Education

Adjacent to the sub-central area will be one of the two special secondary schools serving students from the entire community - either the special vocational school or the separate high school. (See Section 4.52).

5.53.4 Hotels

Hotels could be attracted to the sub-central area in the future. These would be a major asset in diversifying the service employment, underpinning its commercial presence and enriching its entertainment facilities.

The forecasts of the potential hotel accommodation in the area will depend on the nature and extent of commercial, industrial and other demand.

5.53.5 Housing

At least 7,000 people will live in the sub-central area. This community will be composed primarily of single people, young couples and mature families with older children. All would be accommodated in apartments located in and above the many other facilities in the centre. This "core" community provides a special type of living environment which will add diversity to the housing stock of the community.

The sub-central area is to be within walking distance of another 15,000 people and will act as a community centre for many of their day-to-day needs.

5.53.6 Other Uses

Candidates for the subcentral area include a variety of public services and related uses - community clinic, main library, main post office, provincial courts, central police station, various government offices, the "Y", churches, and day-care centres.

An entertainment district should be included in the centre to lend vitality to the new community and act as an amenity for other functions.

The core area should also provide indoor and outdoor spaces for rallies, parades, exhibitions, etc.

5.54 Layout

The sub-central area will be the subject of a separate and detailed study for in many ways it is as complex as the rest of the community together.

The initial planning work has confirmed that the site recommended for the sub-central area is in fact suitable. Guidelines and recommendations have been developed for relating the sub-central area to the rest of the plan. A number of ideas and concepts which may be useful in the detailed work were explored.

The plans for the sub-central area should not be construed as working drawings or plans for a project about to be constructed. The final form will depend on factors like phasing, rate of growth, scale of growth, changing functions, design controls and quality of each development.

5.54.1 Circulation Framework

Initial planning focussed on what might be called the circulation framework - the road system, public transportation and the pedestrian network with its associated open space. (See Figure 5.54.1).

The framework is part of the public infrastructure which must be planned and in most cases laid out in advance of the land-use development. It connects the sub-central area to the remainder of the community, and must ensure continuity and compatibility.

It also represents the skeleton in which the sub-central area will be developed building by building through many private as well as public enterprises. It is this framework which must accommodate growth and changes of function, and still retain the desired qualities through time.

While the public infrastructure can be planned and implemented with some confidence, the land uses to be developed by the private sector are less certain. Land can be zoned for desired uses and principles of site design can be incorporated in some legal form, but the decisions to build will be made by private interests. Therefore, the need for flexibility and a certain freedom to modify rules is absolutely necessary.

Vehicular Access

The recommended internal structure of the sub-central area consists essentially of three roads paralleling the valley.

These could run virtually in the order of 150 m. (500 ft.) apart over the length of the area. The two outer roads are collector roads within the sub-central area, providing access from the arterial roads to all development, particularly parking. They would also serve internal trips.

The central road is the circulation spine to be shared primarily by pedestrians and buses. It could also be used by public service vehicles, and perhaps taxis on a controlled basis.

These roads are connected to the arterial system at a number of suitable places.

This sets out the basic framework of the area, creating four tiers of land to be developed. They follow the contours of the land as it drops toward the valley. The two middle tiers, centered on the transit line and pedestrian route, are seen as the main activity spine for the sub-central area.

Car Parking

Organization of car parking will be one of the prime determinants of the overall form and layout of the centre. To keep the area required by this very large land-use to a minimum, it must be organized to ensure multiple use. For example, shopping by day and entertainment by night. While it must be close to the activities it serves, it must not be allowed to interrupt the main pedestrian system through and into the centre, nor detract in any way from cohesiveness and general visual standards.

The area and type of parking probably will change through the growth and subsequent life of the centre. One of the tasks of the plan is to provide a framework to accommodate various possible arrangements.

Initially, all parking will probably be on the surface. It is not expected land values generated by the sub-central area in the early stages will be sufficient to justify the major capital investment needed for multi-storey

parking. In any case, if this space is properly utilized, it represents a land bank which can be used subsequently for multi-storey structures.

As the demand for land in the sub-central area intensifies, parking structures may become feasible. The actual location and scale of these will depend on the type and nature of development, but they are most likely to be along the central spine where the most intensive uses are expected.

The sloping terrain of the central site presents an opportunity for parking above or below other uses, at relatively little cost when compared to separate structures. This has the considerable advantage of intensifying the use of land and providing direct access to the uses above or below while not interrupting general pedestrian flow.

Service Access

The two collector roads will also be used by service and delivery vehicles.

The sub-central area, however, should be designed without requiring the use of the central pedestrian/transit spine for service vehicles. If this is required, it should be on a limited and strictly controlled basis.

A basement service road running under the commercial core should be possible. If parallel to the collector roads, it could be built as part of the lower level without major excavation because of sloping ground. Implementation of this service run, however, would depend on the scale and rate of development on the centre.

Bus System

The central bus route is an important feature of the internal transit system. (See Section 5.84). The sub-central area was the main place where priority measures were considered necessary in order to ensure the buses could maintain reasonable operating speeds and adhere to their schedules.

This route would pass directly by most of the main facilities in the sub-central area and within two to three-minute walk of the most remote part. This should make the service particularly attractive to potential patrons.

All internal services should pass along this route to or from the interchange station with regional transit. The option has been included, however, for express buses with limited stops to bypass this route and travel directly to the station via the minor arterial road.

Regional Transit

The regional transit right-of-way through the sub-central area for the preferred system could run either along the central spine as shown in the plan, or along the eastern collector road. The alternative routing systems would pass through the middle of the sub-central area in an east-west direction (See Figure 5.54.1). In either case, the service should be accommodated above or below ground for the entire length through the sub-central area so that pedestrian and vehicle traffic are not interrupted.

The physical characteristics of the system are not known. This feature will require careful consideration during the detailed planning of the sub-central area to ensure the selected alignment is technically feasible as well as compatible with the adjacent development.

The stop for this system - also the focus for the local bus service - should be located on the central spine within the main commercial core for shopping and related facilities. It also should be near the east-west minor arterial for convenient vehicular access, and near one of the main east-west pedestrian routes into the centre.

Open Space and Pedestrian System

The network of open spaces in the urban core could be the most important feature in providing the required degree of character and image. Even though the surrounding structures may change, this network will be a constant feature giving the centre a continuing frame of reference. The open spaces themselves will provide a pleasant contrast to the built-up environment, and countless opportunities for formal and informal activities.

Within the sub-central area, the spine to the open space network will be the central north-south corridor development. This spine will be shared by pedestrians, cyclists and local buses. All private vehicular traffic would be excluded. It is also expected to see the most intensive development in the centre.

Figure 5.54.1

Sub-Central Area Circulation Framework

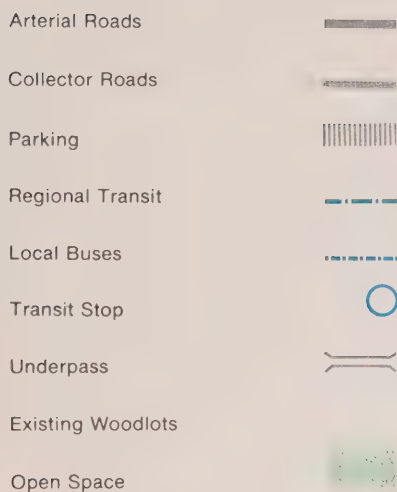
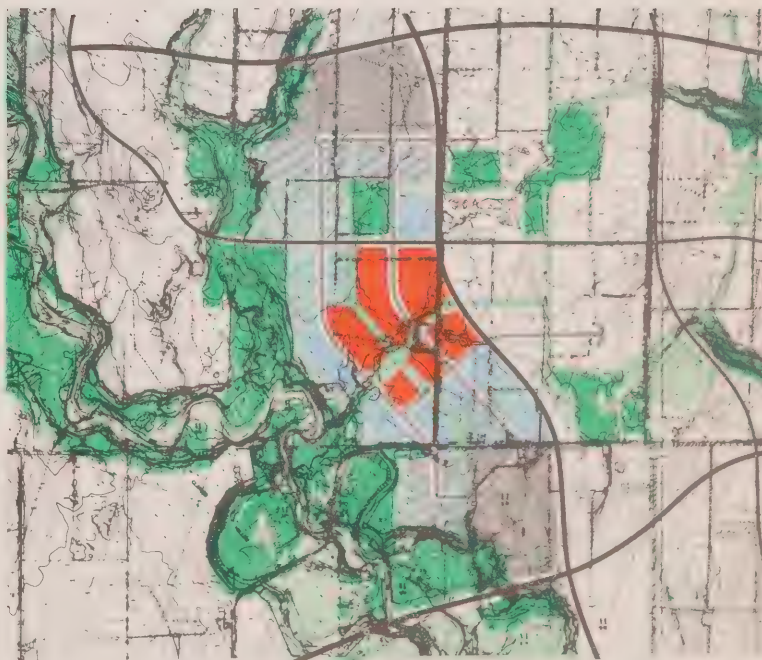
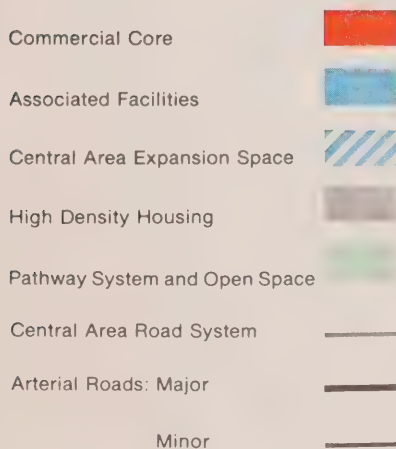


Figure 5.54.2

Sub-Central Area Land Use Distribution



Three routes for pedestrians and cyclists have been shown crossing the sub-central area. They should provide grade separated entries into the sub-central area under the major arterial to the east, and link with footpaths to the valley floor on the west. Two of these routes are part of the major east-west open space corridors running across the community, and hence, tie into the community-wide traffic free pedestrian system.

Where these routes intersect with the main spine, opportunities are created for downtown plazas or other major civic open spaces.

Although the main pedestrian spine is parallel to the valley, the presence of the valley should be evident throughout the length of the sub-central area. In addition to the actual pedestrian links, there will be many glimpses between the development as well as vistas over the top as the development steps towards the valley's edge. Some parts of the valley edge also will be retained as part of the open space system of the centre.

Along the valley edge itself, a continuous walkway and bicycle path should be created to connect the various lookout points, pedestrian links into the sub-central area and footpaths.

Depending upon the nature of the development, entirely enclosed and continuous malls for pedestrians could be developed on either side of the main pedestrian spine. Because of the sloping nature of the land, walkways over the pedestrian spine also could be provided in some cases.

Pedestrian routes should be flanked by pedestrian-oriented uses and display surfaces to provide interest and activity. They should have some form of weather protection like arcades and canopies, and other pedestrian amenities like lighting, street furniture and landscaping elements.

5.54.2 Land Use Distribution

The combination of the major streets, parking areas, public transit routes and pedestrian ways provides a basic structure for the sub-central area that could contain a number of alternative development patterns.

As previously noted, the land-use recommendations have not been explored in detail because they will require separate study closer to the time of implementation. Nevertheless, a number of preliminary

conclusions can be drawn from the initial work.

The circulation framework basically creates four possible tiers of development. Each tier is on average 150 metres (500 ft.) wide, but this could be varied if the detailed planning work produced a more suitable range of dimensions. The middle tiers along the central pedestrian and transit systems should be used for those facilities and activities most intensively used by the public, including the major commercial, entertainment and hotel uses. In this area should be found that close-grained mix of uses that are found in established centres, and that are fundamental to the active, stimulating and diverse area presently conceived.

The tier of development near the major arterial road generally should be available for those facilities like large offices that require good car access in preference to transit access, or uses like hospitals that are not used by a large portion of the public at any one time.

The tier along the valley edge has a unique importance. In principle, this should be reserved for selected community-wide uses that will utilize its special character as well as ensure that it will be kept open for public access.

In addition to the major residential access located at both ends of the sub-central area, residential development should be encouraged above the commercial and other development throughout the sub-central area.

The possibility of also locating the community central area uses - namely, the supermarket and related facilities - to the east of the major arterial also should be considered. These facilities are different in kind to most of the others in the sub-central area because they primarily provide a convenience-oriented service to the nearby residential environment. In this location, they would be accessible to their support catchment, and near the general activity in the sub-central area but without taking up valuable space in the core.

5.55 Development Strategies

5.55.1 Initial Development

The early pattern of development at each stage is important in determining the character and success of the sub-central area. Each stage should achieve a sense of completeness. The buildings, spaces and

access routes should form a complete working unit, functionally and visually. To be avoided are patterns that leave gaps for a key element which may or may not arrive at a future date.

The initial development should probably be made around one of the pedestrian links into the centre that run east-west and perpendicular to the linear form. This could provide a complete connection from the adjacent housing to the east of the centre, and then to the valley to the west. This could be followed by the second east-west connection and part of the central north-south spine. Having established this basic framework as a complete and functional unit, the additional east-west links could be developed and the central spine extended as necessary.

5.55.2 Further Expansion

Up to a population level of 90,000, the development required in the sub-central area can in all probability be contained in the area shown. If required, however, additional growth could be accommodated by several means:

- . Expansion to the north, into the area presently recommended for upper-density housing. This housing could be phased late in the development period, and would need to be reconsidered if further expansion is foreseen;
- . Expansion toward the valley edge, but only with carefully controlled uses which will enhance this special area;
- . Intensification of developed areas, primarily by building on surface parking areas and providing decked or multi-storey car storage. Some vertical expansion of buildings can take place but this can realistically accommodate only a modest part of such growth;
- . Dispersal of some subsidiary facilities to the community central areas. This option should not be used until the vitality and presence of the centre has been clearly established.

5.60 Parks, Recreation and Environmental Protection

5.61 General Framework

The open space network has been designed to preserve the major elements of natural beauty on the site, while at the same time providing generous open areas for both active and passive recreation.

The major elements in this network within the urban area are the valleys and tributaries of the West Duffin, East Duffin and the Little Rouge creeks. These three creek systems provide natural corridors in the north-south direction and will connect the site to major recreational facilities along the lakefront. The North Pickering Hiking Trail, located within the West Duffin Valley, is now in active use and represents the first implementation of the community's open space network. (See Figure 5.61a).

In addition, a number of east-west open space corridors have been proposed. These will connect with the north-south corridors thus providing a broad mesh of open space across the entire site.

These east-west corridors include:

- . the southern part of the open space system, which includes the old Lake Iroquois shoreline adjacent to the southern boundary of the site. Although not a natural corridor, it will be planned to accommodate recreation with trail systems. It will provide an important east-west link between West Duffin Creek, Little Rouge Creek and the natural areas associated with the tributaries of East Duffin Creek. This corridor will also connect the new community to the Metro zoo, the Greenwood Conservation Area and other subregional open space and recreational facilities;
- . a corridor located approximately mid-way between the Fourth and Fifth concession roads, consisting of a tributary stream and a number of existing tree stands. This corridor connects the East Duffin open space system to the West Duffin system and provides a

Figure 5.61a
Open Space Framework

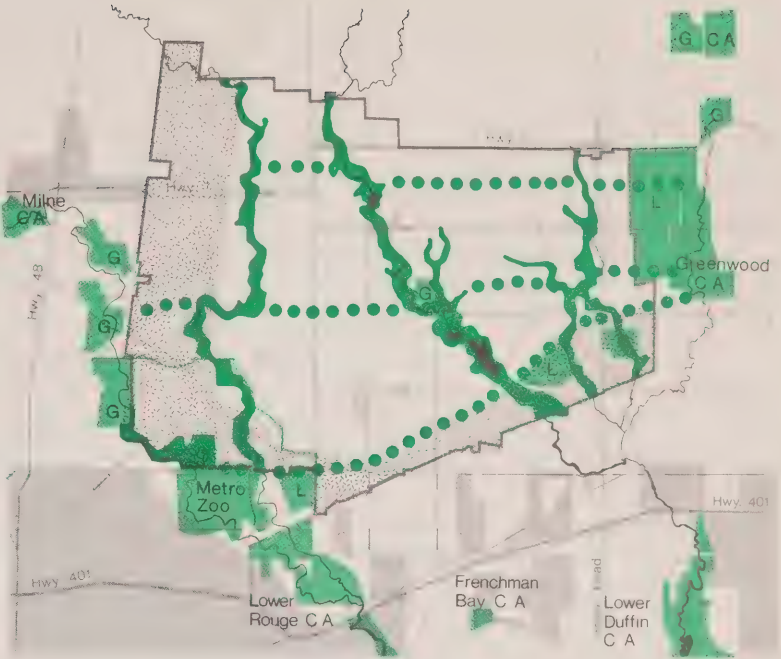
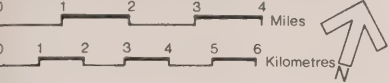
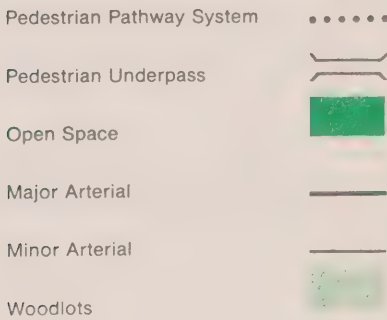


Figure 5.61b
Whitevale Road



major open space link through the centre of the residential community in the sub-central Area;

- . a corridor between the Fifth Concession and Highway 7 that incorporates, as its basis, a number of significant woodlots. This open space corridor will link up Glens Woods on the east to Whitevale Pond on the west;
- . a corridor proposed along Whitevale Road. The transportation network has taken into account the existing residential development and characteristics of the land. The treatment proposed is shown in Figure 5.61b. The primarily open character of this route means people not only will be able to take advantage of architecturally and historically significant buildings, woodlots and existing hedgerows, but will, at the same time, have vehicular access to these buildings via local road systems in the local housing areas. This access could incorporate parts of the existing Whitevale Road.

The Town of Pickering is presently preparing a parks plan covering the use of major creek and valley systems. It is intended that the Parks and Recreation Department of the Town and the Ontario Land Corporation will co-ordinate their planning for this area.

At a more local scale existing drainage courses will be used as links between local residential areas and other wider community functions. The majority of the smaller streams and swales have a north-south orientation, being for the most part tributaries of the East Duffin. Where possible these will be incorporated into housing areas. This reflects the intent of one of the open space guidelines which recommends that smaller tributary streams and associated vegetation be located in residential areas rather than peripherally as a buffer or an edge.

These internal drainage courses will be used as pedestrian and bicycle routes and for passive recreation.

Intensive, active sports and games areas would be generally located in less environmentally sensitive "tableland" areas.

Since these drainage courses will be pedestrian-oriented, consideration will be given to relating neighbourhood facilities to them such as schools, shopping, etc.

The quality of these existing drainage courses will be enhanced by planting and landscaping, by creating ponds which will also serve as storm retention areas, plus other appropriate development measures. Such tailor-made enhancements will strengthen the sense of individuality and uniqueness of each local community.

At this stage, the plan illustrates only the larger open space components. It should be understood, however, that the major open space framework will support and is directly related to a finer network of open spaces and pedestrian links in the local residential areas. These will be detailed in subsequent secondary and draft plans of subdivision.

The entire open space system will provide a continuous network of parks, trails, etc. - free from vehicular traffic - to connect all the major facilities in the new community.

5.62 Urban Parks and Recreational Facilities

The new community will incorporate a park system that will range from tot-lots to extensive recreation areas, both in valleys and on tablelands. Activities such as swimming, soccer, tennis, bicycling, horseback riding, golf and picnicking will be provided for.

5.62.1 Central Park

A large central park which might possibly contain a man-made lake is proposed within the West Duffin Creek Valley adjacent to the proposed sub-central area of the new community. The natural elements of this park will be primarily in the West Duffin Valley while most of the major, more active, recreational and cultural components would be in the central areas, along the valley rim.

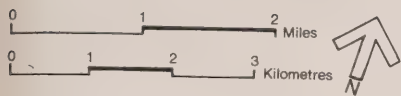
Active recreation could include outdoor and indoor sports facilities including skating, hockey and curling surfaces, court games, general sports areas, youth centre and health club.

A lake covering approximately 48 hectares (120 acres) can be the focal point of the central park. It could accommodate small boating such as canoes, rowboats and sailing craft.

The largest section of the central park would lie in the West Duffin Valley in conjunction with the lake, and could include such passive recreational

Figure 5.62

Open Space Proposals



General Open Space and
Pedestrian Pathways



Central Park



Community Parks



Golf Course



facilities as a bandshell-open-air theatre, outdoor swimming basin, small pools and waterways. botanical gardens, pedestrian trails, picnic areas together with shelters and cooking facilities, interpretive facilities and winter skating and sledding.

5.62.2 Community Parks

Active and passive recreation areas for residents will also be provided in a series of community parks designed for the recreational needs of approximately 20,000 people contained in clusters of four neighbourhoods. Each park would be closely related to a secondary school.

These community parks could also accommodate facilities for group meetings, assemblies and other organized community social functions.

While some areas for passive and contemplative pursuits will be provided in the community parks it is felt the valleys and drainage courses with their rich natural amenities would be best suited for these interests.

Community parks would be approximately a 10-minute walk from the furthest house.

5.62.3 Neighbourhood Parks

One neighbourhood park from 2 to 3 hectares (5-8 acres) will accommodate the immediate open space and recreation requirements of a neighbourhood between 4,500 and 5,000 people.

Where possible these parks will be located on open space drainage courses which will in turn provide pedestrian connections to the adjacent neighbourhoods and other community facilities.

In most cases these neighbourhood parks will be adjacent to the local elementary school in a central location. This allows for both the dual use of the local open space as well as the consolidation of school play space and public open space within the neighbourhood.

Neighbourhood parks could include the following facilities; junior playground; senior play area; surfaced areas for tennis, badminton, basketball, volleyball, etc.; field games area including a softball diamond with overlapping football and soccer field; free-play areas; picnic and sitting areas; shuffleboard; gardens; outdoor swimming pool and children's wading pool; a variety of playgrounds relating to various age groups, i.e., equipped playgrounds, "junk" playgrounds, etc.

Additional open space will be provided within the housing areas in the form of walkways, tot-lots and incidental amenity areas.

5.63 Special Recreation Areas

5.63.1 Lake on the West Duffin

The Metropolitan Toronto and Region Conservation Authority has long-standing proposals for the construction of two dams, one on West Duffin Creek and one on East Duffin Creek, for flood control. In 1961 MTRCA received approval in principle from the Province for these dams. However, each are subject to individual review by the Province before construction can proceed.

MTRCA and their consultants have indicated that without these dams and with a recurrence of a storm of Hurricane Hazel proportions, an area south of the North Pickering Planning Area could be flooded to a depth of three to five metres (10 to 15 ft.). Land uses within the potential flood area include extensive commercial, industrial and residential development.

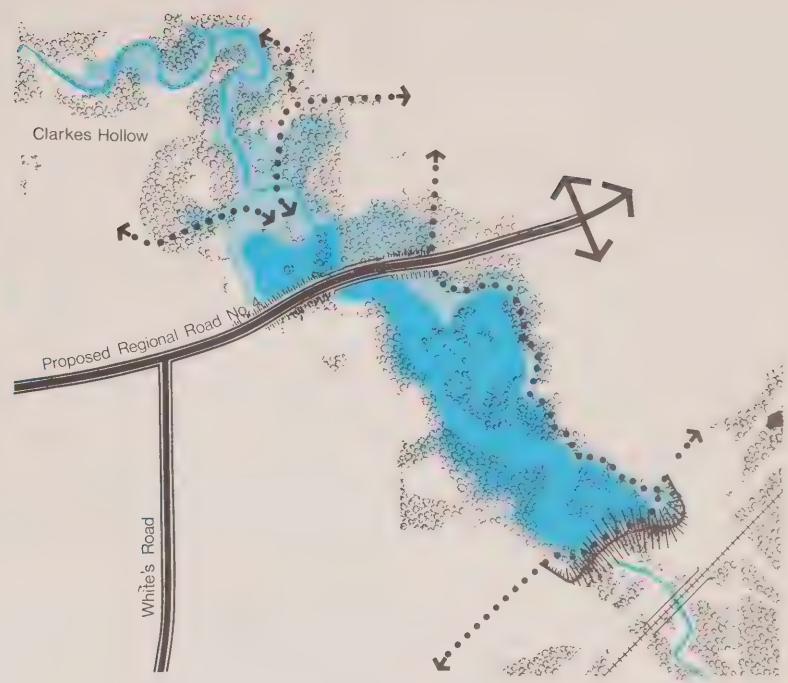
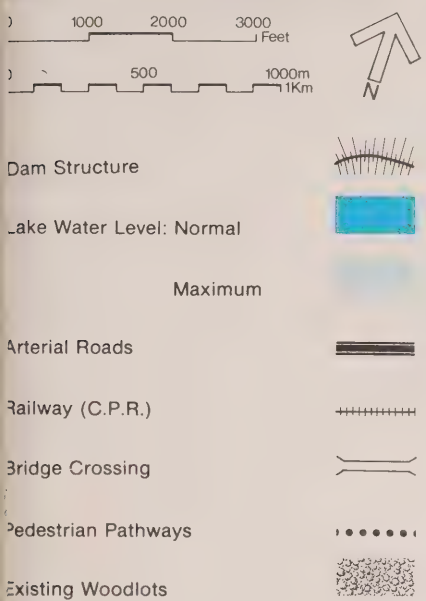
Several alternate locations for the dam within the West Duffin Valley were evaluated by MTRCA and their consultants. Their preferred location was just north of Clarkes Hollow because that location provided maximum water storage at minimum cost.

This selection was made prior to the announcement of the proposed airport and community projects.

MTRCA and other agencies plan to carry out additional studies on the proposed dam in order to assess all implications, particularly those of an economic and environmental nature. The results of these studies are expected in 1980.

Figure 5.63.1

Lake on The West Duffin



The planning team has considered the possibility that such studies may determine that a dam is necessary as well as feasible. Because the lake is considered a desirable amenity within the new community, it has been included within the plan as a possibility subject to the results of these new studies.

Location and Description of the Dam/Lake

The location of the dam shown in the Recommended Plan (see Figure 5.63.1) is south of Clarkes Hollow approximately in line with the old Lake Iroquois shore. This location corresponds to alternative C in the original study prepared for MTRCA.

At present, the characteristics of the proposed dam and reservoir include: maximum storage capacity of 12,463,400 cu. m. (10,100 acre/ft); maximum water elevation of 145 metres (474 feet) top of dam -146 metres (479 feet) elevation; height of dam - 33 metres (109 feet); maximum surface area of 100 hectares (250 acres).

The permanent or operational level of the lake has not yet been determined. Operational level is defined as the normal level of the reservoir subject to fluctuations. These fluctuations are mainly due to the release of water from the reservoir, as required to maintain necessary downstream flow or to provide additional capacity in the reservoir.

Although further studies will be required, the reservoir area or lake, as shown in the plan, reflects a water elevation at or below 131 metres (430 ft.).

5.64 Open Space System

As noted in Section 1.11, the Minister of Housing in January, 1974, announced the setting aside of 3,200 hectares (8,000 acres) on the west and south periphery of the North Pickering Project site for an open space system of predominantly agricultural, recreational, and other compatible uses with accommodation for utilities and transportation corridors.

Although these lands are outside of the planned urban area and the limits of the proposed amendment to the Durham Plan, they do define the south and west limits of the community and potentially constitute part of its recreational resource.

5.70 Industrial Areas

5.71 Locational Considerations

Proposed major industrial land use, as illustrated in the plan, is concentrated along the northern and eastern boundaries of the urban area. (see Figure 5.71).

These locations best satisfy the desired inter-relationships between other land uses both within and outside the community as well as industrial location requirements in the local and regional context.

Some of the more specific factors which influenced locating these industrial lands are discussed in the following sections.

5.71.1 Airport Influences

If an airport were constructed north of the new community, higher levels of aircraft noise (30 N.E.F.+) would be experienced along the community's northern and eastern boundaries. The plan reflects this first by planning for industry in these areas rather than housing.

If the airport were built, any airport-related industry in the new community would probably be located in the major industrial area adjacent to and south of proposed Highway 407. In such a location, this special industry would enjoy the advantages of good access and proximity to the airport and related services.

5.71.2 Regional Transportation

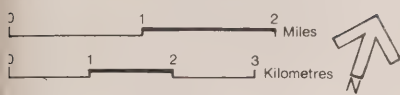
A second factor influencing the location of industrial uses is the regional transportation system, both existing and proposed.

Roads

The major regional roads, Highway 7 and Brock Road, both to be substantially upgraded, provide direct regional connections for industrial and commuter traffic to the east and north of the site. In addition, the

Figure 5.71

Industrial Areas



Industrial Areas



Industrial Areas Requiring Special Design Controls



proposed Highway No. 407 and East Metro Transportation Corridor will provide a high degree of accessibility to Metropolitan Toronto and southern Ontario.

Commuter Traffic

The new community has been planned as a live-work community, where job availability will provide residents with employment in the community, if they so desire.

The new community will also be an integral part of a dynamic metropolitan region. Experience in the region and in new towns elsewhere shows that not all of the residents in the community will choose or have the specific skills to work at the jobs provided locally, and therefore will commute to work elsewhere in the metropolitan region. It is anticipated that the work trips generated by the Seaton Community can be adequately accommodated by the proposed staged development of Provincial and Regional roads as well as internal roads.

Railways

Both proposed industrial areas to the north and to the east can be served by either main line rail or spur service. Alternative alignments for the CP Rail Havelock line are presently being evaluated. This line, presently crossing the airport site diagonally, will, when relocated, serve the northern industrial area. A portion of the eastern industrial area could be served by a spur east of Brock Road from the Havelock lines.

5.71.3 Industrial Location Within the Community Structure

Most important for major industrial areas is that they be conveniently related to, but separate from, the main residential areas and the rest of the community. In this way there can be good access to jobs by those residents locally employed, while the community itself is insulated from the disruptive effects of commuter flows and freight and truck traffic. Furthermore, although large scale industrial developments have changed substantially during recent years - becoming cleaner, more spacious and of a lower profile - they are for the most part poor neighbours in residential areas.

5.72 Industrial Land-Use Guidelines and Standards

A number of broad guidelines and standards have been used to assess the desirability of potential industrial areas. The use of these guidelines and standards also ensures, to some degree, that sufficient industrial land will be available to accommodate the specific needs of a variety of industrial clients.

5.72.1 Lot Size

The range of industrial parcel sizes that should be accommodated in the proposed industrial areas is between 0.8 hectares (2 acres) and 20 hectares (50 acres). These are generally broken down into four categories:

0.8 - 2 hectare	(2 - 5 acres)	=	50%
2.6 - 4 hectares	(5 - 10 acres)	=	30%
4.5 - 8 hectares	(11 - 20 acres)	=	10%
8.5 hectares +	(21 acres +)	=	10%

It appears the most flexible layout can be achieved by initially planning industrial areas to accommodate an arrangement of smaller lots. These can be combined to provide larger lots as required.

The following lot depths and sizes are proposed:

1 ha (2-3 ac)	=	75-100 m deep (250-300 ft.) approximately
2 ha (5 acres)	=	120 m deep (400 feet) approximately
2.5 ha + (6 ac.+)	=	200 m deep (700 feet) approximately

Lots substantially greater than eight hectares (20 acres) fall outside this general guideline, but can be accommodated readily when specific industrial sites are being planned in detail.

5.72.2 Slope

Slope is critical in industrial layouts. Gradients of 0 to 2½ per cent constitute no constraint. Any land with gradients over five per cent is economically and physically prohibitive if it extends over large areas, but may be usable if it occurs in small pockets. On the other hand, land that is flat over large areas can cause surface drainage problems.

Generally, the larger lots should occupy the most level areas since they will most likely accommodate large single-storey structures where grading should be minimized. Smaller lots can be located in areas of around 2½ per cent slope, since grading can be localized and may not be too expensive in terms of cost or waste land.

Some of the smaller pockets with steeper gradients may provide the opportunity for landscaped open space around prestige buildings, but this will probably affect the coverage and density. Generally, office or prestige accommodation located in industrial areas can make better use of natural landscape features, slope, etc. than conventional industrial buildings.

5.72.3 Road Access

Access to individual industrial parcels from the major arterial road system will always be by service road. The rights-of-way for such service roads should be about 26 metres (85') to allow for underground services in a landscaped strip along each side of the road.

These service roads are subject to the normal requirements for grade, curvature, spacing of intersections, etc.

It is economic for a service road to provide access to parcels on both sides wherever possible.

Though no industrial parcels have direct access to the major arterial roads, many companies may wish a high-visibility location, for example along Highways 407 and 7.

5.72.4 Rail Access

On the average between 10 and 20 per cent of industrial lots require rail service and these tend to be the larger establishments. However, it would seem prudent at this stage to provide for the possibility of a higher level of rail service, for instance, in the event of further increased oil prices. A guideline of 30 to 40 per cent rail service has been used to allow for possible increased rail usage as well as to provide greater flexibility of location in any industrial area.

The maximum grade for main rail lines is 1 percent and for spur lines is 2 per cent. Track has to be level in loading areas. On reasonably level ground, a 31 metre (100') right-of-way should be adequate for two main tracks with a parallel service track on each side.

5.73 Site Analysis

The entire area in Figure 5.71 is not available for development as deductions from the industrial land budget will have to be made in order to locate public transportation components. After all major deductions, the approximate amount of industrial land available for development is 723 hectares (1,786 acres).

Given this rather firm figure, there are two additional considerations which may affect the ultimate industrial capacity:

- A large part of the east industrial area is located in an environmentally sensitive area. Industrial development within this area, particularly in the southern section, will therefore be tailored to respect the environment. Prestigious, non-noxious, industrial uses such as those found just north of Eglinton Avenue and Don Mills Road and along Leslie Street north of Eglinton in Metro is the type of development envisaged for this area.
- Such development will reduce the chance of adversely affecting the water quality in the tributaries of East Duffin Creek which pass through the area;
- Storm water management proposals for the community indicate most of the locations suitable for ponds lie in or very close to the areas proposed for industrial use. This may not significantly reduce the amount of land suitable for industrial development since these locations tend to occupy gravel pits or marsh areas. Nevertheless, environmental management should be developed in close liaison with the detailed planning of the industrial areas.

The plan illustrates only the two major industrial areas. There may be requirements for smaller pockets of industrial use, two hectares (5 acres) or less, outside the major industrial zones in the residential community. These may be developed within some of the opportunity sites illustrated in the plan, when and if required.

5.74 Detailed Development Plans

Detailed plans of development will be prepared within the context of draft plans and site plans before any implementation. However, some of the particulars of development of the two main industrial areas are evident at this stage.

5.74.1 Northern Industrial Areas

The north area is bounded by Highway 407 on the north; West Duffin Valley on the west; Highway 7 on the south; and a line just west of Brougham on the east.

The average depth of the industrial area between the rights-of-way for Highways 7 and 407 is approximately 670 metres (2,200'). This allows the development of a two lot-depth layout, with a 30 metre (100') main rail right-of-way through the middle.

Service roads have access off Highway 7 at approximately the mid-points of the one-kilometre grid. This conforms with general road system rationale. The lots will have highly visible frontage on both Highways 7 and 407, as the service roads run parallel and adjacent to these rights-of-way. In total, approximately 310 hectares (760 acres) of industrial land can be accommodated in the northern industrial area, giving a total employment potential of between 9,300 and 12,400 at full development.

This area is bounded by attractive wooded valleys to the east and west which help define and contain the development. Natural features within the industrial parcels are to be retained where possible during the course of development. It may be necessary in some instances to channel stream courses, but this disruption of the natural course will only be done where essential. Existing stream courses and tree lots etc. will be landscaped and used as employee pedestrian open space links and spaces within the industrial areas as well as to the adjacent residential community.

Three small areas for ponds in the storm water management proposals are in or adjacent to the green buffer zone which borders the industrial area to the south. Their treatment will be incorporated into the landscape proposals.

5.74.2 Eastern Industrial Area

While the eastern area possesses a number of large parcels, it is generally fragmented and subdivided by the tributary valleys of the East Duffin Creek system and other environmental features like the major knoll east of Brock Road. It is anticipated that individual lots will, on average, be more costly to service than the north area. Lot sizes will vary considerably in dimension and shape, but will provide a reasonable mix in the one to eight hectare (2 to 20 acre) range.

Service road access is from Brock Road, a major spine through this industrial area.

Detailed planning of the sites in the southern part of this area must consider the potential impact on the East Duffin. Environmental studies have shown this to be a particularly sensitive sub-catchment. Development in the vicinity of existing stream courses will have to receive careful treatment at the detailed level with respect to the possible effects on the present drainage patterns, and the quality of runoff. Some stream courses will have to be channelled and these should be accommodated in open, landscaped amenity areas.

There is the potential for a major storm water retention pond in the west part of this area. This should be designed and landscaped as part of the overall open space and environmental management proposals for the drainage systems in the area.

6. Transportation

6.10 Urban Transportation Network

The transportation system for the Seaton Community provides for the automobile, public transit, rail transport, goods movement, bicycle and pedestrians. It is compatible with and in support of desired land use patterns, while providing for the safe and efficient movement of the various modes of travel.

The transportation system complements the planned balanced community and provides a desirable level of service for the continuing stages of development. Careful consideration has been given to the existing communities, the environment and the aesthetic character of the area in order to minimize or alleviate transportation impacts.

6.10.1 Circulation Framework

Preparation of the transportation plan involved finding a balanced and complementary relationship between transportation and wider community needs. On the one hand, the transportation system clearly must meet generally accepted standards of efficiency and cost. On the other, if the transportation facility is to be a constructive element in assisting the community to grow and function properly, it must also be designed to serve a wide variety of social, economic and physical planning goals both for the community at large and the individuals who become its residents.

The transportation plan must initially identify and subsequently protect a permanent framework of corridors for public, private and commercial traffic. However, while the plan speaks realistically of roadways and bus services operation within these rights-of-way, the rights-of-way themselves are to be considered permanent transportation corridors which can carry a variety of transportation mixes as required under differing conditions.

Early analysis demonstrated a grid system of arterial roads would function well in Seaton. This grid provided an even mesh of accessibility throughout the urban community which balanced a number of internal design concerns. It also connected well with the existing regional roads outside the site.

The grid consists of an overlapping network of major and minor urban arterials spaced at 1 kilometre with the major arterials designed for easy

access to the external road system while the minor arterials are designed to serve the internal needs of the community with slower speeds and more frequent access. The alternate location of major and minor arterials delineates local housing areas free of arterial traffic and also provides intersections where the community centres can be easily accessible.

A separate system has been created for pedestrians and cyclists. Using this system, it should be possible to walk or cycle from any place in the community to any other without meeting major vehicular traffic. This system incorporates the natural open space corridors and the stream courses, and connects the other major landscape features such as woodlots. (See Figure 6.10.1).

The separation of the two systems will depend upon the degree of conflict. Within the local housing areas, sidewalks can be safely run alongside the local streets. Along with minor arterials, the sidewalks should be divided from the road surface by a planting margin, with crossings at controlled points only. No sidewalks should be provided alongside major arterials and the crossings should be provided at only a limited number of underpasses or overpasses.

Similarly, traffic-free areas should be created in the centres - the areas of greatest pedestrian and traffic activity.

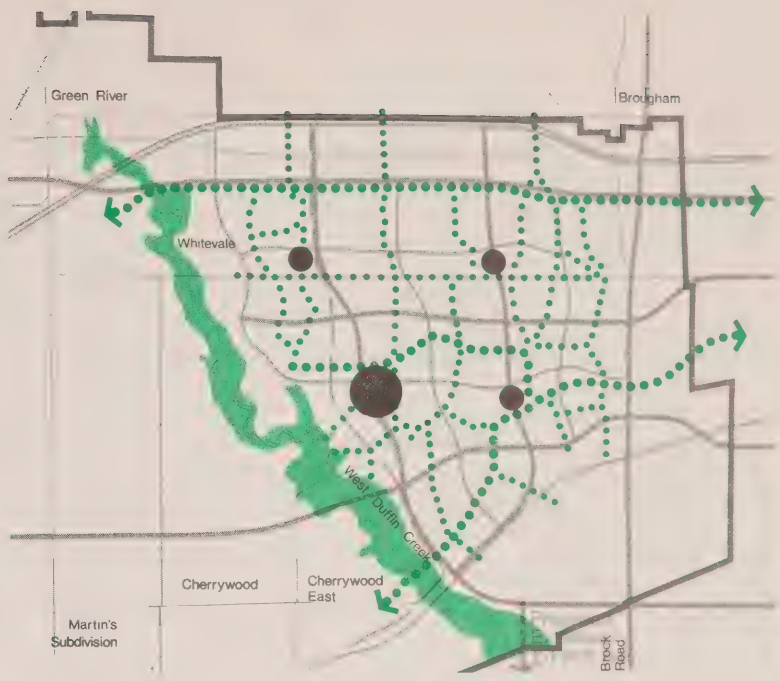
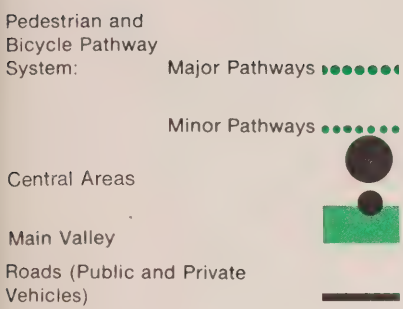
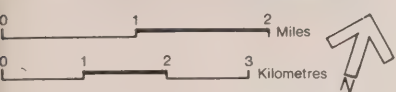
The road system, associated bus transit system and independent pedestrian system provide a more or less regular matrix of intersection points throughout the community. These intersections have various degrees of accessibility which have been used in locating the various types of activity centres.

The sub-central area is located where it can be served by a number of major arterials as well as the main pedestrian corridors. Community central areas are at the intersection of major and minor arterial roads where they will be convenient for local as well as long-distance trips. These centres are also in the main pedestrian system.

6.10.2 Urban Road Network

A high degree of regional and local accessibility will be provided to Seaton by existing and proposed provincial and regional road facilities; these include:

Figure 6.10.1
Circulation Framework



Provincial

- Highway No. 401
- Highway No. 2
- Highway No. 7
- Highway No. 48
- Proposed Highway No. 407
- Proposed East Metro Transportation Corridor

Roads of Regional Significance

- Brock Road
- Whites Road
- Altona Road
- Finch Avenue Extension
- Taunton Road
- Whitevale Road
- Steeles Avenue Extension

As the Seaton community proceeds, combined with other area developments, the above road facilities will be expanded and improved to provide adequate levels of service and convenience of travel to all traffic.

The basic road network was determined after examining a number of alternative road systems in conjunction with their associated land-use patterns.

It was selected because it best incorporates a number of design concerns related to regional connections, environmental constraints, traffic requirements, public transit, facilities distribution and local housing areas.

The recommended system is compatible with the "Regional Road System" proposed in the "Region of Durham Transportation Study" of 1976. (See Figure 2.21).

For the overall densities finally recommended for the community, the required road capacity was roughly equivalent to a regular one-kilometre grid of four-lane arterials.

The walking time from the centre of the one-kilometre grid to the edge is about five minutes. Therefore, the grid also establishes a regular interval throughout the community useful for locating facilities. Where appropriate, these facilities can be placed next to an arterial road with good vehicular access while still within convenient walking distance of roughly 5,000 people.

Local bus services can be run on the arterial roads where they have direct and relatively fast routes without causing additional traffic in the housing areas.

6.10.3 Urban Design Characteristics

A description of the road classification provided for in the Seaton community is presented in Table 6.10.3a.

TABLE 6.10.3a

PROPOSED ROAD CLASSIFICATION

<u>Classification</u>	<u>Description</u>	<u>Function</u>
Freeway	High speed design, usually four or more lanes, no intersections provided at-grade.	Movement of large volumes of vehicles at high speed over moderate to long distances.
Major Arterial	No private or local access but access to arterials and collectors can be provided at-grade, normally at signalized intersections. Parking is prohibited.	Movement of large volumes of vehicles at moderate to high speeds over medium to long distances.
Arterial	Moderate design speeds. Private access to property. Access to collectors and major private entrances only is preferred. Parking is discouraged.	Movement of moderate volumes of vehicles at moderate speeds over medium distances.
Collector	Moderate design speed, two or four lanes. Access to local streets permitted, private access permitted but controlled. Parking is permitted.	Collection of local traffic for distribution to arterials or expressways. Low speed for low to moderate volumes of vehicles.
Local	Low design speed. Desirably cul-de-sacs, loops or crescents. Parking permitted.	Service to property, low speeds and service to very low traffic volumes. Should serve no through traffic.

The design characteristics of the above road classification within the urban area is presented in Table 6.10.3b.

TABLE 6.10.3b
DESIGN CHARACTERISTICS OF URBAN ROADS

Type of Road	Design Speed: km/hr (mph)	Right-of-way m. (ft.)	Intersection Spacing m. (ft.)
MAJOR ARTERIAL			
4-lane divided	65-80 (40-50)	40-45 (130-150)	500-330 (1650-1100)
4-lane undivided	65-80 (40-50)	40-45 (130-150)	
MINOR ARTERIAL			
4-lane undivided	50-65 (30-40)	30 (100)	330-250 (1100-800)
2-lane undivided	50-65 (30-40)	30 (100)	
COLLECTOR			
4-lane undivided	40-50 (25-30)	24 (80)	160-250 (500-800)
2-lane undivided	40-50 (25-30)	24 (80)	
LOCAL			
2-lane	25-40 (15-25)	20 (66)	

6.20 Public Transit

6.20.1 Urban Public Transit

Public transit will be an essential part of the Seaton community. It will provide the primary travel alternative for those who, for a variety of reasons, do not have access to, or are unable to, operate a private vehicle.

The transit system will be an integral component in the overall community structure.

Buses between the community central areas and the sub-central area run on the grid roads in order to provide a direct, efficient route as well as minimize vehicular traffic through neighbourhoods. Residents of these neighbourhoods would be provided with at least one service within a maximum walking distance of 400 metres (1,300 feet) and in most cases they will have a choice of more than one service.

6.20.2 Regional Public Transit Considerations

Proposals for regional transit in the community are clearly dependent upon future developments in the wider region. However, the plan has reflected the objective of bringing regional transit facilities into the Seaton community by providing potential regional transit rights-of-way through the community. Further, the plan would integrate this regional system with the local transit system.

As already outlined, transportation authorities are considering construction of an intermediate capacity transit system to serve the population in the northeast Metro corridor. If this line were built to the new community at Malvern, the feasibility of extending it to the new Metro Zoo and the Seaton community should be investigated.

In addition, the potential exists for the connection of local public transit with the GO transit services in the Lakeshore Corridor as well as the Locust Hill dayliner Rail services provided by CP Rail.

7 Services and Utilities

Studies^{49,50} in the area of services, utilities and telecommunications for the new community have covered a broad range of potential needs and methods for fulfilling them.

Environmental considerations will lead to the adoption of innovative methods for handling storm drainage to minimize both peak flows and pollution load in storm water runoff. Many innovative concepts for infrastructure systems are directly related to specific planning criteria such as land use and densities, as well as broad questions of agricultural and development controls, financing, design, construction and operation. Such concepts could be developed and monitored as pilot projects in specific cases within the overall project.

The proposals outlined in this report represent a framework within which further studies and detailed designs will be carried out. The proposals are flexible, but establish the standards and principles for the development of the community.

7.10 Planning Considerations

The level and standards of services, utilities and communications will be comparable to those traditionally provided in urban areas of Southern Ontario.

All sectors of the urban development will be provided with water supply and fire protection. Sanitary sewage will be collected for treatment. Telecommunications, electrical power and gas systems will be via underground conduits in road allowances. All roads will be lit.

Standard locations for services, utilities and communications systems are proposed for local roadways (see Figure 7.10).

Location of trunks or primary services will, where feasible, be in service corridors through open space systems or within major transportation corridors.

Standards developed during the study, together with applicable standards of the Region of Durham and Town of Pickering, will form the basis for servicing. Improvements to these standards, however, should be considered wherever appropriate. Local standards will be supplemented

by those of the relevant provincial ministries. Since this is a provincial project, every effort should be made to advance the concepts of standardization proposed in the Ontario Ministry of Housing Report on Urban Development Standards 1976.⁹⁹

All systems for the new project should be designed utilizing the international system of metric units. Even where manufactured items such as pipes are not produced in standard metric sized (S.I.), all dimensions for current sizes should be converted into metric units.

In the case of storm water drainage, the standards of service normally provided may be reduced or altered in order to increase the level of environmental protection.

The various systems are considered in three categories:

- Regional Systems are those provided either outside, adjacent to or on the site by other agencies to serve a large area, of which Seaton is only a part.
- Primary Systems are those serving large areas of the site, but usually not used for direct connection by user (main roads, open space). These are services traditionally provided or administered by the municipality, but may be provided by the Ontario Land Corporation.
- Secondary Systems are all other local services provided on public land (traditional subdivision services) but do not include any services within blocks such as high-density residential, commercial, industrial and institutional lands. These services are normally provided or paid for by the developer-builder.

Many of the services proposed are largely traditional and require only brief explanation. Where innovations are proposed or required, as in the case of storm water management, more detailed discussions are provided.

7.20 Services Recommendations

7.21 Water Supply and Distribution

The proposed regional water system for the area will be integrated into the development. The Regional Municipality of Durham will be involved in the provision of the water system.

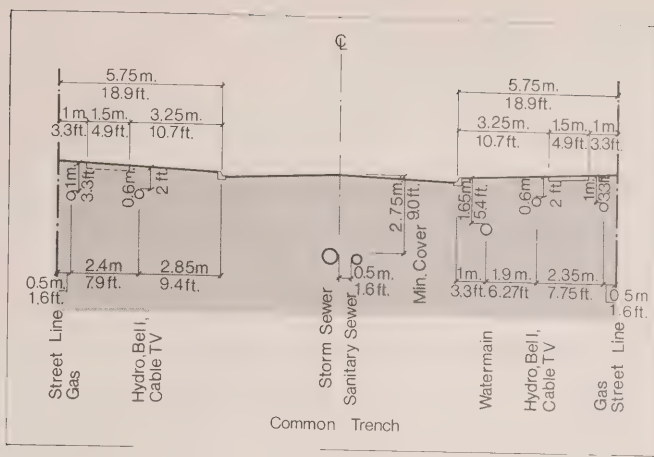


Figure 7.10
Typical Location of
Services Along Street

Major transmission mains will be routed along service corridors such as major arterial roads. Ground reservoirs, where required within the community, will be located in parks or open space areas and landscaped for recreation use.

A network of primary distribution mains will be provided on arterial and collector roads to ensure adequate supplies to all sectors of the development.

The secondary system on local roads, looped frequently to the primary network, will supply water to the consumers.

The Regional and Primary Water system is at present being analyzed by J. F. MacLaren and Associates and will be completed by the end of 1979.

7.22 Sanitary Sewerage

Primary gravity trunk systems will generally follow natural drainage patterns including existing watercourses within open space areas or service corridors along arterial roads.

In some areas, pumping stations will be required to lift the sewage from a low-level gravity system to a higher one.

Industrial waste bylaws administered by Region of Durham will encourage inplant treatment and recycling of liquid industrial wastes, reducing the load on sewers and treatment plants.

Industrial waste policies applicable to the development will require the review and approval of proposed industrial process flows and treatment systems.

7.23 Solid Waste Management

In the early development, it is anticipated solid waste will be disposed of in the traditional sanitary landfill manner subject to the jurisdiction and policies of the region and the area municipality.

7.24 Telecommunications

Telecommunications technology has now reached a point where systems can provide a wide range of services to the home, community, government

agencies, business and industry. Seaton provides an ideal opportunity to put into place telecommunications systems incorporating the most advanced technology. These systems would have the capacity to offer services far in excess of those normally available in most communities - even new communities.

At present, telecommunications systems within communities are established by the common carriers and by the cable television industry. While one single integrated system is theoretically possible, it is likely that parallel systems will be established by the telephone and cable industries utilizing facilities that incorporate the most modern technology. Seaton offers the opportunity for both industries to develop and test innovative services which can be beneficial to the community and can put it in the forefront of telecommunications development in Canada.

Throughout the planning process to date, both industries have demonstrated an active interest in Seaton and innovative approaches to services and systems.

7.25 Electrical Power Distribution

Distribution planning studies by Ontario Hydro will form the basis of the recommendations for electrical power distribution.*

The new community will take service from the provincial 230-kV electrical power transmission line which runs along the south boundary of the development. The voltage will be reduced through a new transformer station probably located near Cherrywood. An alternative is to continue the 230-kV line into the site and locate the new transformer station in the community. This matter is still under consideration.

The initial service for the early stages of development will be supplied from an existing distribution station at Green River at the standard 27.6-kV voltage.

The primary and secondary distribution of power should be provided underground for all land uses.

*The Pickering Hydro Electric Commission will be the supply authority as of July 1, 1980.

Low profile pad mounted transformers (mini-pad) will be used for residential and other areas where the unsightliness of the standard pad mounted transformer should be avoided.

7.26 Gas

It is proposed that natural gas be made available by private enterprise.

7.30 Storm Water Management

Development of land for urban uses normally increases the quantity of storm water runoff and the frequency of peak flows, while at the same time decreasing storm water quality. Associated with the increased frequency of high flow velocities, which may erode unprotected soil and scour stream banks, is an increase in the frequency of stream bank and flood plain inundation.

Preliminary studies based on providing a standard storm sewer system have shown that impairment of stream quality and hydraulic overloading can occur in existing streams.

These problems coupled with the expressed desire to preserve the natural environment require non-traditional approaches to storm drainage be developed and applied.

The storm runoff control method recommended will reduce the rate and quantity of local runoff by providing on-stream retention plus storage for wider areas.

7.31 Inlet Control Methods

In order to reduce the rate and the total quantity of runoff, it is recommended consideration be given at the local scale to these inlet controls:

- Discharge roof downspouts to grassed areas, rather than directly to storm sewers. This will increase infiltration and time of concentration and thus reduce peak flows;

Size local storm sewers for a two-year design storm, at the same time providing continuous overland storm drainage outfall to minimize flooding in the event of storm sewer surcharge;

- Provide detention storage on flat roofs and suitable parking lot areas.

The effect of these proposals will be to reduce peak storm discharge by 15 to 20 per cent.

The essential reason for constructing storm drainage works is to dispose of excess precipitation that would otherwise cause damage or inconvenience. However, since the cost of storm drainage works increases directly with the degree of protection provided, tolerance to some frequency of inconvenience is required.

Most modern storm sewer designs are based on 2 to 10-year design storm frequencies. It is generally accepted that by proper planning, lot grading and adequate storm drainage works, nearly all damage to private property, including basement flooding, can be avoided. If basements are protected from flooding caused by storm sewer surcharging or if the houses are not connected to the storm sewers, a two-year storm may be considered adequate for design. In the case of high value districts, such as the sub-central area and certain commercial and institutional establishments, the more intense five-year or even 10-year design storm will be required depending upon the available relief when the capacity of the storm drainage system is exceeded.

Alternatives for service connections include: connection directly to a deep, safe-capacity storm sewer or connection to a separate small diameter sewer system, designed for foundation drainage only.

From an administrative viewpoint, a uniform service connection policy should be established. From the environmental viewpoint of reducing storm runoff peaks by limiting capacity of storm sewer systems and creating controlled ponding and surcharging, the policy of not permitting service connections is desirable. However, in an area that is serviced by deep storm sewers and has streams which are not particularly sensitive to

increased storm water flows, storm sewer connections would be acceptable. It is recommended storm sewer connections be further evaluated for each catchment area prior to detailed design when more information is available on environmental, storm drainage and land use aspects.

7.32 Detention Storage Methods

Storm water detention facilities can be constructed at moderate cost. Most watercourses are planned as open and natural channels with public space alongside. Few watercourses are to be channeled or piped.

Proposed detention methods that would have application to the site include:

- Off-Stream Ponding - artificial ponds to store and provide sedimentation for storm sewer discharges before flows enter natural watercourses;
- On-Stream Storage - flow-regulating weirs or check dams to impound runoff in the stream valley allowing discharges similar to predevelopment rates and storing the surplus for release when overflow rates drop below allowable;
- Regional Detention-Recharge Ponds - major detention in available recharge areas could also be used where upstream storage is not sufficient or economically feasible to achieve the desired hydraulic conditions. Storm runoff waters would be diverted into large ponds - they could be abandoned gravel pits or swamps - for temporary storage and possible ground-water recharge. Detention areas would often be located upstream of stream reaches requiring protection or preservation. Channel improvement costs could therefore be reduced.

Storm drainage would be designed to suit the characteristics and requirements for individual streams. A comprehensive and sophisticated approach to storm water management will be required in order to determine the most feasible system for each catchment and best combination of inlet controls and storage.

7.33 Proposed Regional Dams

The location and operating characteristics of the proposed Clarkes Hollow dam on the west branch of Duffin Creek will be important in the design of

the storm drainage system for the community. The area flooded upstream of the dam could allow uncontrolled free outfall to a reservoir capable of attenuating storm runoff peak flows to acceptable levels. All storm drainage from the sub-central area and significant amounts of drainage from the high-density residential and industrial areas will drain to West Duffin Creek. If the dam is constructed at or downstream from Clarkes Hollow, it could alleviate much of the concern regarding increased peak flows discharging to the West Duffin.

Lands draining to East Duffin Creek enter the main channel downstream of the proposed Arthur Percy dam on this branch of the creek and therefore storm drainage from the community would not be affected by this proposal.

8. Implementation

8.10 Development Program

It has been apparent for some time that as available land has diminished in Metro Toronto, the municipalities immediately to the west have received the main urban development pressures. This rapid growth west is a continuation of historic trends of urban development in the Toronto-Hamilton lakeshore corridor.

Provincial policies are now directed to altering this by encouraging development of municipalities east of Metro. An early and sustained commitment to Seaton's pace of development will do much to divert the existing momentum east to Oshawa and beyond.

8.11 Staging of Development

Implementation of the Seaton New Community has been broken down for the purposes of planning into four stages, each representing the completion of a secondary development area.

<u>Stage</u>	<u>Population Per Stage</u>	<u>Cumulative Population</u>	<u>Approximate Timing</u>
Stage One	16,000	16,000	1982-88
Stage Two	14,000	30,000	1989-94
Stage Three	10,000	40,000	1995-97
Stage Four	38,000	78,000	1998-2008

The possible sequence of development is shown in Figure 8.11. It should be emphasized, however, that implementation is expected to be continuous and must be capable of adapting to changing circumstances over the development period.

Population increments used to define each stage represent the minimum number of people required to support a community central area. At maturity the centres should be sustained by approximately 20,000 people.

The phasing schedule is based on the first housing being available in 1982. Housing will probably proceed in increments of residential neighbourhoods with populations of between 5,000 to 6,000 people. To meet this schedule, construction of services must begin in 1981.

8.11.1 Staging Guidelines

Housing

In each of the phases, the low and medium-density housing accommodating a mix of income groups has been planned roughly in proportion to their final numbers.

Local convenience shopping and elementary schools will be available when housing in each neighbourhood is completed.

Traditionally, the initial years in new communities exhibit considerable departure from the norms of older established communities. They are characterized by demographic bulges due to the numbers of young children, both pre-school and elementary; a similar bulge of young marrieds; few, if any, old people; a concentration in single and semi-detached homes with some row housing; a relatively narrow social mix and - in North America - an inevitable but unsure bias toward those able to afford the costly new product; little by way of the promised social and recreational facilities. But as the community matures, those distortions disappear.

Rather than accept such distortions, it is recommended the Ontario Land Corporation should, from the beginning, do everything possible to achieve the social and economic characteristics of a mature community.

For these reasons, little adjustment is proposed for the Stage I housing profile other than a moderate adjustment of the dwelling unit mix and the demography of households.

Upper-density housing, however, can be delayed until the development of the sub-central area either in Stage 3 or 4. It has been assumed residents of this type of accommodation will not be attracted to the community until it has a range of higher-order facilities. In any case, the sub-central area and its integral and surrounding housing should be developed as a co-ordinated package to provide a sense of structure and completion.

Community Central Areas

Each stage of development is structured around one of the three community central areas and the sub-central area, since these should

accommodate facilities within walking distance of the neighbouring housing.

Sub-Central Area

The character of the community will be significantly influenced by the timing and scale of the initial sub-central area development. One strategy would be to begin development as soon as possible with a vigorous promotion of the area for all appropriate uses, including office employment.

It would be possible to start the commercial uses with a limited community centre containing supermarket and associated shops in the sub-central area. This approach aims at capitalizing on early development to establish a sub-central area presence psychologically and commercially. This would ensure continuation of this pattern.

The major problem posed by this approach, however, is related to preserving flexibility for final development. It is much easier to achieve a coordinated overall development by starting with a few major components and filling in the smaller elements later than it is to do the reverse.

The recommended phasing strategy is to hold back until a large-scale development can give substantial form and presence to the sub-central area. The initial development would begin, therefore, when there is a demand and an economic threshold for a department store. This would trigger the associated development of other retail shopping, entertainment, office space, library, health facilities and high density housing.

Industry

To create a live-work community sufficient industrial land must be developed in each stage to match the employment requirement of people moving into the community. It may be too much to expect to match the types of industry with the residents in every stage but this should be taken into account throughout the entire implementation period.

A full range of industrial lot sizes will be available throughout the phasing.

Transportation

External Road Connections

The external road system defined in 6.10 is in conformance with the present and future transportation plans of the Regional Municipality of Durham and the Ministry of Transportation and Communications. The staging of improvements to the provincial and regional systems will be closely tied to the staged development of the community and its relative dependency on external locations for employment, shopping and social activities. Particular attention must be paid to connections to Metropolitan Toronto.

Internal Roadways

The phasing of internal roadways is directly related to the staged development of residential and employment areas. The phasing of roadways will be as needed and will be negotiated in the planning approval process.

Phasing and sizing must be worked out to ensure the internal road network provides an efficient transportation routing system at all times.

Transit

Public transit must be provided at the earliest possible date. This is crucial if it is to attract a wide range of residents, and if it is to develop a viable transit system as it grows.

Extension of the existing services would be a logical first step. The introduction of a fixed route system to connect with other transit systems would be determined by economic considerations and service objectives.

Provision of an internal fixed-route transit system will not be needed until there is a significant degree of intra-community movement beyond what can be considered a reasonable walking distance. This will occur most probably when the major commercial, office and social facilities are established in the sub-central area. Before that time, community facilities will be concentrated in the community centres within a 10 minute walk of most homes.

Utilities and Services

Services, utility and telecommunications systems, will be provided for each phase with sufficient capacity to accommodate subsequent phases.

The first two stages are contained within the East Duffin Creek watershed leaving the West Duffin watershed relatively unaffected until the third and fourth stages.

In general, the phasing of the development lends itself to systematic and efficient implementation of all services, utilities and telecommunications provided that adequate lead time for design and construction is integrated into the development programme.

Associated Developments

The phasing program will be directly related to the timing of the construction of Highway 7, 407 and East Metro Freeway, the York-Durham water and sewage systems and the Ontario Hydro program, as they are known at this time. The nature and timing of these associated developments can be expected to vary over the total development period, and flexibility has been incorporated into the staging of Seaton to respond to changes.

8.12 First Stage

The first stage of development is proposed on the southeast corner of the site. (See Figure 8.11).

Prior to the development of the major regional transportation system which includes Highway 407 and the East Metro Transportation Corridor, Highways 401, 7 and 2 will provide a high degree of regional and local accessibility to the site. Brock Road, which intersects the above three facilities, will provide the initial access to and from the community road network.

The housing area is one of the most attractive and contains a branch of East Duffin Creek which can also be integrated into the community central area.

Both industry and housing can be developed side by side to achieve a live-work environment from the beginning.

Land Use

The population of 16,000 people can be divided into four neighbourhoods containing approximately 6,000 dwelling units on about 210 hectares (520 acres).

The majority of housing is roughly halved between lower and middle densities. Only about 15 per cent of the dwellings are shown in the upper-density range because most residents seeking this type of accommodation are unlikely to arrive until diverse facilities are established. Space has been left for developing additional upper-density housing at a later stage. Higher density housing areas will focus on the community central area, containing the main commercial and social facilities.

There will be three public elementary schools, two separate Roman Catholic elementary schools and a public secondary school.

The industrial area to be developed either side of Brock Road will cover approximately 250 hectares (600 acres). Industrial employment will reach 6-7,000 jobs.

Transportation

The community's basic kilometre road grid will be established in the first stage. Two new east-west and three north-south grid roads will be developed off Brock Road and Taunton Road. Brock Road will facilitate the dispersal of traffic to and from the major inter-regional facilities such as Highways 401, 7 and 2. To provide for ease of travel and high levels of service, the internal community and boundary roads will be designed to acceptable urban standards.

Initial bus service in the first stages could be an extension of the existing service in Pickering. This could be co-ordinated with a scheduled bus service operating from the community centre express to the Pickering town centre and/or the GO Transit station at Liverpool Road.

Utilities and Services

Primary sanitary and storm drainage systems will generally be located in the valleys and open spaces, but where possible use will be made of the transportation corridors. Sanitary sewers will hook into the eastern trunk sanitary sewer of the York-Durham system.

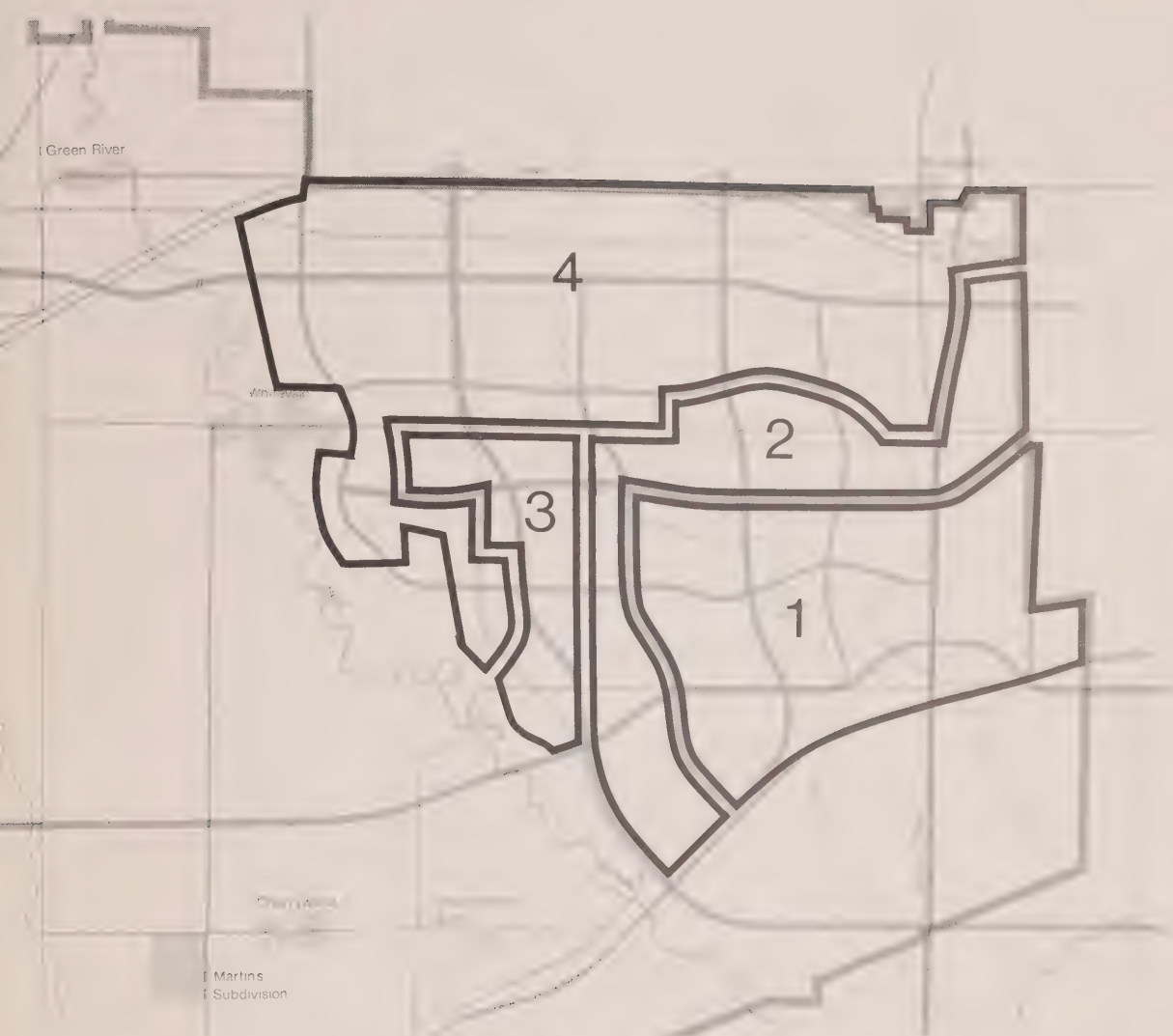


Figure 8.11
Phased Development

	Population (Cumulative)	Completion by
Stage 1	(16,000):	1982-1988
Stage 2	(30,000):	1989-1994
Stage 3	(40,000):	1995-1997
Stage 4	(78,000):	1998-2008

Stage 1 includes development in water pressure zones III and IV, connected to the regional zone III reservoir.

As is normal for large scale developments, the facilities implemented in the early phases will be oversized to accommodate subsequent upstream development.

The York-Durham regional trunk sewer and lake outfall is scheduled for completion by fall 1979. the sewage treatment plant on Duffin Creek will also be operational in 1980, negating the need for interim sewage treatment measures.

Water for Seaton will be supplied by a connection to the Region of Durham system. Initially, the system will be constructed so as to ensure the desired standard of service established for Seaton.

Utilities and telecommunications systems can be provided as required given a lead time of approximately two years. Interim or temporary facilities may be required on a small scale, particularly for construction purposes.

8.13 Second Stage

The second stage would raise total population from 16,000 to over 30,000 people.

Land Use

The second stage would involve development of housing around another community central area in the central part of the community.

The mix of housing will be similar to that developed in the first stage.

Industrial land would be about 105 hectares (255 acres) providing opportunities for between 3,000 and 4,000 industrial jobs, depending upon the mix of industries. The industrial areas would be along Brock Road, readily accessible to the community and regional roads and served by extensions to services provided in Stage 1.

Transportation

The community road network will be a continuation of the basic kilometre road grid established in the first stage. The internal roads

will be extended in all directions with major expansion towards the west.

Additional regional accessibility will be gained to the north, west and south by the extension of internal roads to connect with the Provincial and Regional road network.

The internal road network and boundary roads will be sufficient and adequately designed to provide a high level of service to community generated traffic as well as the expected background vehicular traffic.

Public transit trips generated by the higher order shopping, office and social facilities could necessitate a separate internal bus service. If so, the system would focus on the sub-central area and community centres, and could connect with an extended express bus service from the community to the Pickering Town Centre and thence to the GO Transit station in Pickering.

8.14 Third Stage

The third stage would bring the population of the community to over 40,000 people.

Land Use

The community can now support a comparison shopping centre. The primary shopping component will be a full-line traditional department store or an expanded discount department store. The total floorspace, counting the associated shops, could be about 28,000 square metres (300,000 sq.ft.) gross leaseable area requiring a site, including parking, of eight to ten hectares (21 to 26 acres). The associated shops would be similar to those previously noted, although the 50,000 population catchment could support larger and more diverse facilities.

Housing, because of the presence of the central area, is expected by this stage to contain almost the full range of housing recommended in the final plan.

Transportation

In the third stage the basic road network would be expanded and extended as required to meet the vehicular activities of the community. This would include widening of major internal arterial roads, further connections to the Provincial and Regional road networks and

integration with the planned road improvements and extensions of Metropolitan Toronto.

8.15 Fourth Stage

The fourth stage brings the population of the urban community to its planned level of 78,000. This would be accomplished by developing the housing areas north of Whitevale Road around the two community central areas. During this final stage the full range of housing would be developed around all the earlier community centres. The sub-central area would achieve full development with the three department stores, complete range of associated shops, offices and high density housing.

The northern industrial area of nearly 370 hectares (910 acres) would become almost fully developed except for continued expansion of existing industry. This area will provide between 11,000 and 14,000 industrial jobs, depending upon the final industrial mix.

8.20 Planning Approval Procedure

As noted in Sections 2.12.1 and 2.12.2, an amendment to the Official Plan of the Regional Municipality of Durham is required as a prerequisite of development of Seaton. In addition, the Ontario Land Corporation has made a commitment to the Town of Pickering to prepare Plans for Development for each stage of the community and to submit these plans to the Town for approval.

Based on these requirements and commitments, and in consideration of the need to provide opportunities for the public to participate in the planning process, the following planning approval process is now contemplated.

8.21 Amendment to the Official Plan of the Region of Durham

Prior to, and during, the submission of the Amendment and Supporting Documentation Report, the consultants for the Ontario Land Corporation will discuss in detail all material with the technical staff of the Town, Region and Ministry of Housing.

According to the Planning Department of Durham Region, the following process for review of the Amendment will be utilized.

1. Submission of Amendment and Supporting Documentation Report to the Planning Commissioner and Planning Committee of Durham Region.
2. Circulation of submission by Durham Region to relevant Provincial, Region, Municipal and special purpose agencies and departments for review.
3. Review of amendment by Town of Pickering Planning staff and Planning Committee.
4. Public hearing sponsored by Town of Pickering to present and discuss the submission.
5. Review of Amendment by the Town of Pickering Planning Committee.
6. Review by the Town of Pickering Council and recommendation to Durham Region.
7. Report by Durham Planning Department to Planning Committee.
8. Review and recommendation by Planning Committee to Durham Council.
9. Review by Durham Council
10. Submission of Amendment to Ministry of Housing.
11. Approval by Ministry of Housing.

8.22 Plans for Development by Stage

There is clearly a need for the Town of Pickering to have a planning document setting out land uses and policies at a more detailed level than the Durham Plan, which by its nature is very general. This need is not satisfied by the District Plan for the Town of Pickering, which is essentially a framework for secondary plans.

The necessary control, at the level of detail corresponding to that of the proposed stages of development of Seaton, can be obtained by the

Town of Pickering by the adoption of a Plan for Development for each stage of the project.

8.22.1 Plans for Development: Content

The format and content of the Plan for Development for each stage of Seaton be based on that of the Community Plans of the Town, with some additions as appropriate. In particular, the provisions of all of the following sections of the Durham Official Plan which outline matters to be addressed in District Plans, will be complied with in each Stage Development Plan; 1.3.6, 2.3.1, 8.1.2.1b, 8.1.2.2, 8.1.2.10, 8.1.3.2, 8.1.3.3, 8.2.2.16b, 8.2.3.1, 8.3.2.5, 8.4.3.1, 13.2.10.

It is proposed that Plans for Development be prepared for each major stage of development of the Seaton Community, setting out the following land use components with appropriate policies:

1. Preamble
2. Assumptions
3. Land Use Policies
 - Residential Areas by Density categories
 - Commercial Area
 - Sub-Central Area
 - Community Central Areas
 - Local Central Areas
 - Special Purpose Commercial Areas
 - Industrial Areas, by intensity categories
 - Community
 - Hazard Lands
 - Open Space
 - Neighbourhood Parks
 - Community Parks
 - District Parks
4. Roads, Pedestrian Walkways and Transit
5. Special Design Precincts
 - Design Plans
 - Land Use Guidelines

6. Implementation

7. Interpretation

A background studies report will be submitted including all of the material necessary to describe and support each Plan for Development.

8.22.2 Plans for Development: Planning Review Procedure

It is proposed that the following steps form the basis for the Planning Review Procedure for each Plan for Development.

1. Technical meetings between the Ontario Land Corporation and its consultants with the planning staffs of the Town of Pickering and Durham Region to define and discuss Town concerns, to review the elements of the plan which are specifically of Regional concern and to finalize the content and background documentation for the Plan for Development.
2. Submission of the Plan for Development and background studies report to the Town of Pickering Planning Department.
3. Concurrently, submission of copies of the above to Durham Region Planning Commissioner, for information purposes.
4. Public Review consisting of two or three public meetings and one Planning Committee public hearing to cover the following:
 - . Presentation of the inventory and analysis segment of the work program.
 - . Discussion of proposed goals and objectives for the Plan for Development.
 - . Presentation of alternative concept plans for the study area reflecting alternative goals, objectives and policies. The public will be asked to respond to the information presented and the Ontario Land Corporation will evaluate their responses, making modifications as necessary to the concepts.

- . Presentation and discussion of alternative plans, followed by evaluation of responses and modifications.
 - . Presentation and discussion of a Preferred Plan.
5. Following these meetings, review by Ontario Land Corporation of public and other agencies responses to the Preferred Plan and effect the necessary changes, as required. The resulting Plan for Development will then be submitted to the Town of Pickering Planning Committee.
 6. Review by the Planning staff of the Town of Pickering and submission of a report and recommendation to the Town of Pickering Planning Committee.
 7. A public hearing held by the Planning Committee on the Plan for Development.
 8. Finalization of the Plan for Development and submission to Council.
 9. Council consideration and adoption of the Plan for Development.
 10. Copies of the Plan for Development will be lodged with Durham Region and the Ministry of Housing for information purposes.

8.30 Environmental Management

The management procedures which follow are designed to protect and enhance the natural features of the site during implementation of the plan and afterward. Successful detailed planning and management strategies are considered essential for environmental protection and are a key element in the plan.

The emphasis has been to generate and apply a particular set of objectives and standards to the entire planning process. This role does not stop with the production of the plan.

Environmental quality objectives and standards, arrived at through consultation with provincial officials, private consultants and special interest groups and citizens, remained consistent throughout the planning process:

Protect hazard lands, as well as prominent and unique landscape features;

- . Preserve and enhance existing vegetation to provide slope stability, hydrological control, recreation potential, microclimate amelioration, biological uniqueness and wildlife habitat;
- . Maintain natural stream flow and minimize runoff peaks by providing storm water retention and possible groundwater recharge areas.
- . Provide cultural and historical continuity by preserving significant features from the past as educational and amenity features.
- . Provide opportunities for outdoor recreation.

8.31 Valley Lands

The strategy for detailed environmental planning and management should be to implement co-ordinated elements of:

- . detailed environmental analysis for secondary and plan of subdivision stages;
- . water management including storm water modelling for purposes of determining size and location of temporary and permanent retention areas and implementation of same;
- . review and monitor plans of subdivision with respect to avoidance of sensitive areas construction practices with regard for protection of sensitive areas erosion control, rehabilitation, timing;
- . construction supervision to ensure adherence to stated guidelines during and after construction.

8.32 Construction Guidelines

Erosion Control

Since large sediment loads are generated during construction, and since Duffin Creek and the downstream marsh at Lake Ontario are valuable fisheries and wildlife habitats, an erosion management plan must be initiated. This includes careful consideration of the following elements:

- phasing of construction in especially sensitive zones;
- sediment traps, particularly for dewatering trenches;
- temporary seeding of slopes over 5 per cent;
- temporary sediment traps.

Detailed construction guidelines are being prepared for construction use.

8.33 Outdoor Recreation

The open space design foresees a continuous system of corridors linking all types of open space lands to other community facilities. This would permit pedestrian and bicycle movement between all community facilities and key resource areas outside the community.

Water courses and wooded strips are preferred as focal points for residential neighbourhoods. This implies some development of drainage courses for passive use such as walking and cycling. Existing natural features would be retained as much as possible and enhanced by plantings.

A main hiking trail has been created along the West Duffin, with picnicking facilities at the terminal points, interpretive loops in interesting natural areas and, hopefully, a nature preserve near Whitevale Pond. This proposal has been prompted by the need for outdoor education resources by regional schools.

8.34 Architectural and Historical Buildings

The survey⁸ of architecturally significant buildings and historic structures identifies four basic classes of structures on the new community site. A rating should be re-evaluated if a specific issue arises. The first priority is to recognize the importance of buildings in classes 1 and 2. The intrinsic value of these structures makes them key design elements in the new urban framework. Their presence can lend definition and variety to Seaton. Possible uses are residential, commercial institutional depending on location.

8.35 Developer (O.L.C.)/Builder Relationship

The role of the Ontario Land Corporation will be that of the developer, i.e. to produce serviced land for sale to merchant builders. The builders will be responsible for the financing, construction and sale of the houses. However, O.L.C. will retain architectural control to ensure a consistent high standard of design over the whole community.

Appendices

Metric Conversions

Throughout the report data is given in both metric (SI) and Imperial Units.

To aid the reader, the following is a table of equivalents for the most common units to two decimal places.

1 metre	=	3.28 feet
1 square metre	=	1.20 square yard
1 square metre	=	10.76 square feet
1 cubic metre	=	0.81 x 10 ⁻³ acre feet
1 kilometre	=	0.62 miles
1 square kilometre	=	0.39 square miles
1 hectare	=	2.47 acres

Glossary of Abbreviations

CLI	Canada Land Inventory
COLA	Central Ontario Lakeshore Area
COLUC	Central Ontario Lakeshore Urban Complex
CMA	Census Metropolitan Area
CMHC	Canada Mortgage & Housing Corporation
CN (R)	Canadian National Railway
CP (R)	Canadian Pacific Railway
CPI	Consumer Price Index
EMTC	East Metro Transportation Corridor
ICTS	Intermediate Capacity Transit System
GO	Government of Ontario (transit service)
LRT	Light Rapid Transit
MTARTS	Metropolitan Toronto & Regional Transportation Study
MOT	Ministry of Transport (Canada)
MTC	Ministry of Transportation & Communications (Ontario)
NEF	Noise Exposure Forecast
NP	North Pickering
NTIA	New Toronto International Airport
OLC	Ontario Land Corporation
ROW	Right-of-Way
TAAP	Toronto Area Airports Project
TATOA	Toronto Area Transit Operating Authority
TCR	Toronto-Centred Region
g.l.a.	gross leaseable area

Bibliography

Integrative Material Issued During the Planning Process

1. Discussion Paper No.1
Initial Assumptions & Issues September 1973
2. Public Discussion Paper No.1
Initial Assumptions & Issues September 1973
3. Public Discussion Paper No.2
Establishing Goals & Objectives December 1973
4. The North Pickering Project
A new Community Planning Information A series of inserts in a Planning Kit
5. Towards a Basis for the Plan
Interim Report 1 October 1974
6. Evaluation of Phase III Modified Concept Plans
Interim Report 2 February 1975

Environmental Planning

7. The Historical Complexities of Pickering, Markham, Scarborough and Uxbridge, October, 1973.
8. Architectural Evaluation of the North Pickering Project and the Toronto Area Airports Project Sites, April 1974.
9. Environmental Terrain Study, January 1973.
10. Detailed Urban Land Capability Survey of NPCDP Site - Vol.1, October 1973.
11. Detailed Urban Land Capability Survey of NPCDP - Vol.II - Terrain Maps, October 1973.
12. Environmental Planning: An Approach to Environmental Analysis, October 1974.
13. A Hydrologic Model for Environmental Impact Assessment in the Rouge, Little Rouge, Petticoat and Duffin Watersheds, March 1974.
14. Hydrologic Assessment of the Phase III Modified Concepts upon the Watershed Systems Associated with the North Pickering Project (FROUT Model), December 1974.
15. Preliminary Analysis of Water Resources Impacts of Urbanization on the North Pickering Community (STORM Model), March 1975.
16. A Biological Survey of the North Pickering Project Site and Toronto Airport II Site, March 1974.
17. Extra Site Impact Project - Vol.1, July 1974.
18. Extra Site Impact Project - Vol.2, March 1974.
19. North Pickering Archaeology, June 1974.

Community Design

20. Preliminary outlines of options for the physical design of the new community, Background Paper No.1, June 1974.
21. New towns reviewed, Background Paper No.2, June 1974.
22. People, dwellings, density and community form: a preliminary study of inter-relationships, Background Paper No.3, June 1974.
23. Review of possible demographic profiles for the future residents of the new community, Background Paper No.4, June 1974.
24. A compendium of discussion papers on housing, Background Paper No.5, June 1974.
25. A preliminary review of shopping and community form, Background Paper No. 7, June 1974.
26. Open space planning guideline, Background Paper No.8, 1974.
27. Retail Market Study, Larry Smith Research Ltd., February 1975.

Finance & Data Management

28. Position paper on data storage and retrieval requirements, Background Paper No. 1, December 1973.
29. Report on Data Base Structure and Implementation Alternatives, Background Paper No.2, April 1974.
30. Financial Data for Physical & Community Services, Background Paper No.3, 1975.
31. Preliminary Financial Analysis, Background Paper No.4, 1975.
32. A First Financial Evaluation of the Recommended Plan, Background Paper No.5, September 1975.

Economic Planning

33. Economic Development - Interim Report, June 1974.
34. The Iterative Lowry Modelling Exercise: Phase I: The North Pickering Project's Lowry Model, Background Paper No.2, 1974.
35. Lowry Model Analyses of North Pickering: Phase II, Background Paper No.3, December 1974.
36. The "Market" Profiles for North Pickering: Some First Impressions, Background Paper No.4, 1974.
37. Urban Systems Analysis: A Literature Review, Background Paper No.5, 1974.
38. Urban Systems Analysis: Aggregate Analysis of Regional and Lakeshore Corridor Patterns, Background Paper No.6, December 1974.
39. Urban Systems Analysis: Synthesis and Implications for North Pickering, Background Paper No.7, December 1974.

40. Identification of Manufacturing Growth Industries, Background Paper No.8, 1974.
41. Industrial Location Patterns, Background Paper No.9, December 1974.
42. Location and Site Requirements of Secondary Industry, Background Paper No.10, January 1975.
43. Input/Output Study for Industrial Linkage Requirements, Background Paper No.11, January 1975.
44. The Identification of Most Probable Industries, Background Paper No.12, January 1975.
45. Study of the Potential Future Distribution of Service Industries in the Toronto Region, Background Paper No.13, April 1975.
46. Urban Employment for North Pickering, Background Paper No. 14, April 1975.
47. Income and Occupation Profiles for North Pickering, Background Paper No.15, April 1975.
48. Strategic Proposals for Implementing a Live/Work Community at North Pickering, Background Paper No.16, July 1975.

Services, Utilities & Communications

49. Services, Utilities and Communications; Interim Report, October 1974.
50. Services, Utilities and Communications; Report March 1975.

Social Development

51. Social development interim report Vol.I; Summary of background studies, June 1974.
52. Social development interim report Vol.II; Inventory of information, June 1974.
53. Technical Information Relating to Social Programs and Facilities in North Pickering (Background Paper No.1), March 1975.

Transportation Planning

54. Transportation Planning, Interim Report, June 1974.
55. North Pickering Commuting Analysis, (A Background Paper), April 1974.
75. Planning for Urban Goods Movement (A Background Report), February 1975.

Reports Prepared by External Agencies

56. Central Ontario Lakeshore Urban Complex, COLUC Task Force Report, December 1974.

57. Housing Ontario/74, An initial statement of policies, programs and partnerships, May 1974.
58. Advisory Task Force on Housing Policy - Report, Chairman E. Comay, August 1973.
 - Background Report - The Housing Production Process in Ontario, Public Participation Program.
 - Working Papers: Volume 1
 - (a) housing issues and housing programs
 - (b) housing supply
 - Working Papers: Volume 2
 - (c) land for housing
 - (d) housing assistance
 - (e) government & housing
59. New Toronto International Airport - Pickering, Written summary, Toronto Airports Project, Transport Canada.
60. Airport Inquiry Commission - Report, 1974.
61. Metropolitan Toronto Transportation Plan Review - A Series by
 - Municipality of Metropolitan Toronto
 - Toronto Transit Commission
 - Ministry of Transportation & Communications
62. The Metroplan Series by
 - Metropolitan Toronto Planning Board
 - Metropolitan Toronto Transportation Plan Review
 - Ministry of Transportation & Communications.
63. Recommended Guidelines for Residential Servicing in Ontario, Ontario Housing Advisory Committee, December 1973.
64. Research Report on Municipal Services for Residential Subdivisions, Ontario Housing Advisory Committee, August 1972.
65. Central York/Pickering Water & Sewage Works Report to the Ministry of the Environment, by James F. MacLaren Ltd., May 1973.
66. Central York/Pickering Areas, Water & Sewage Systems, June 1972 and February 1974, Ontario Ministry of the Environment.
67. Duffin Creek; Report on Flood Control and Water Conservation, R.K. Kilborn and Associates for MTRCA, December 1962.
68. Guidelines and Criteria for Water Quality Management in Ontario, Ministry of the Environment, June 1970.
69. Water Quality Information, Rouge, Duffin, Petticoat Creek System for 1974, Environment Ontario, June 1975.
70. Green Paper on Environmental Assessment, Ontario, Ministry of the Environment, September 1973.
71. Corridor Evaluation Report, The Rail Relocation Co-ordinating Committee on the Study of CP Rail, Havelock Subdivision Relocation, January 1975.

72. The Archaeological Resources of the Metropolitan Toronto Planning Area, Inventory and Prospect, Victor A. Konrad, March 1973.

Design for Development

73. The Toronto-Centred Region, The Government of Ontario, May 1970.
74. A Status Report on the Toronto-Centred Region, The Government of Ontario, August 1971.

Recent Studies

76. North Pickering Development Corporation
Finch Avenue Arterial Road Feasibility Study Technical Report
McCormick Rankin and Associates, Consulting Engineers, March 1977.
77. Route Feasibility and Functional Planning Study
Arterial Road Network - Urban Stage I Development
North Pickering Project,
Totten Sims Hubicki Associates Limited, February 1978.
78. Revised Traffic Projections for Functional Planning Studies, North Pickering Project, North Pickering Development Corporation, Ministry of Housing.
Totten Sims Hubicki Associates Limited, February 1978.
79. Route Feasibility and Functional Planning Study, Parts of Arterial Roads, Vicinity of Brock West Sanitary Landfill Site, North Pickering Project, Ministry of Housing, Totten Sims Hubicki Associates Limited, Consultants, August 1978.
80. Retail Market Study for the North Pickering Project.
Larry Smith & Associates Limited, February 1979.
81. Commercial Inventory, Shopping Centre, Supermarkets, Service Stations, Statistical Data 1, Town of Pickering, November 1977.
82. Commercial Inventory, Strip Commercial, Statistical Data 2, Town of Pickering, November 1977.
83. Ontario Housing Requirements 1976-2001, Ministry of Housing, Peter Barnard Associates, February 1977.
84. Appendices to the report, Ontario Housing Requirements 1976-2001, Ministry of Housing, Peter Barnard Associates, February 1977.
85. Housing Demand by Tenure in Ontario for the period 1976 to 1981 - A New Approach, Ontario, Ministry of Housing, December 1978.
86. A Study of the Housing Market in the Toronto Area, The Toronto Home Builders Association, Robert L. Siegel & Associates, Inc., Dec. 1977.

87. Urban Residential Land Inventory: Toronto Housing Market Area, Urban Development Institute, M.M. Dillon Limited, April 1977.
88. Housing Policy Study for the Town of Pickering, IBI Group, Sept. 1976.
89. Housing and Population in the Town of Markham, Town of Markham Planning Department, August 1979.
90. Statistics, Scarborough Planning Board, Scarborough Planning Staff, March 1979.
91. Demographic Trends and Forecasts 1976-2001, Regional Municipality of Durham, Planning Department, August 1978.
92. Church Campus Concept Study, Inter-Church Regional Planning Association, Gordon S. Adamson and Associates, July 1970.
93. Official Plan of the Regional Municipality of Durham.
94. District Plan for the District Planning Area of the Town of Pickering.
95. North Pickering Project, Summary of Recommended Plan, Ontario, Ministry of Housing, August 1975.
96. Water and Sewer Servicing and Financing Study, Regional Municipality of Durham, December, 1977.
97. Durham Data Manual, Durham Planning Department, 1979.
98. Region of Durham Housing Demand Study, Phase One: Forecasts of Effective Demand, Woods Gordon & Company, June 1979.
99. Urban Development Standards, A Demonstration of the Potential for Reducing Costs, Local Planning Policy Branch, Ontario Ministry of Housing, 1976.

List of Illustrations

<u>No.</u>	<u>Title</u>
1.10a	Regional Location
1.10b	Project Area
1.20	TCR: Zone 1
1.34	The Planning Process
2.10	Regional Land Use
2.21	Regional Roads
2.22	Regional Transit
3.11	Land Form
3.13	Soil Capability
3.14	Wind Directions
3.15	Stream Courses
3.16	Woodlands
3.21	Historic Buildings and Archaeological Sites
3.22	Existing Land Use
3.23.2	Alternative Dam Locations
3.30	Existing Local Roads
4.42a	Housing Form Related to Density
4.42b	Housing Land Related to Density
4.51	Regional Shopping Centres
4.81	Development Constraints: Residential
4.82	Development Constraints: Industry
5.21	Residential Distribution
5.44	Location of Community Central Areas
5.52	Location of Sub-Central Area
5.52.2	Sub-Central Area Site
5.54.1	Sub-Central Area Circulation Framework
5.54.2	Sub-Central Area Land Use Distribution
5.61a	Open Space Framework
5.61b	Whitevale Road
5.62	Open Space Proposals
5.63.1	Lake on the West Duffin
5.71	Industrial Areas
6.10 1	Circulation Framework
7.10	Typical Location of Services Along Street
8.11	Phased Development

